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demands for drinking water of the citizens they serve. Water from the Delta, which is of high quality, is necessary to allow for the utilization of other water supplies. For example, Delta water is frequently mixed with lower quality water from other sources before it is provided to Southern California residents for drinking and agricultural uses. The saline geology in the Colorado River Basin causes water from that source to generally be high in total dissolved solids, averaging about 700 mg/L. By contrast, SWP supplies tend to have low TDS concentrations in the range of 200-300 mg/L.⁵⁹ Because Colorado River water is highly saline, State Contractor member agencies that use Colorado River water, including Metropolitan, must blend that water with higher quality SWP water in order for the Colorado River water to be usable for drinking water uses or for water banking.⁶⁰

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Metropolitan's blending practices provide an example of the necessity of high quality SWP water deliveries. Metropolitan has adopted a policy to achieve blends of these source waters that do not exceed TDS concentrations of 500 mg/L. Metropolitan adopted this standard because salinities higher than this level would increase service costs, decrease the amount of water available, and reduce operating flexibility. For example, high salinity water has a residential impact resulting from the increased degradation of water heaters and other plumbing fixtures. Further, direct treatment of saline water without blending is costly and typically results in losses of up to 15 percent of the water processed. In addition, water with a high salinity content results in more saline wastewater, which lowers its usefulness and increases the costs of treating and utilizing recycled water.⁶¹ If low salinity water is not available, membrane treatment must be used, which result in losses of up to 15 percent of the water processed and increased costs.⁶²

Unless higher salinity water is treated or blended, it will affect agricultural use and degrade the quality of soils in their service areas. In addition, degradation of the water available for groundwater recharge could limit the use of local groundwater basins for storage due to the inability to meet basin plan water quality objectives established by the RWQCBs. Thus, when SWP supply water is inadequate to blend with more saline Colorado River water supplies, imported Colorado River water cannot be used to recharge groundwater basins without concern for compromising the water quality objectives of the groundwater basins.⁶³ This would exacerbate the impacts to groundwater caused by any water curtailments required by the action.⁶⁴

b. Inability To Use Recycled Water

Groundwater basins within the service areas of some of the SWC's member agencies are recharged with recycled water, thereby reducing the demand for imported water. However, each cycle of urban use of recycled water typically adds 250 to 400 milligrams per liter ("mg/L") of total dissolved solids ("TDS"). When wastewater flows already have high salinity concentrations, the use of recycled water becomes more limited or will require much more

⁵⁹ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 1.

⁶⁰ Andrej, John T., *Water Quality, California, 2004: California Water Plan Update 2005*, at pp. 21-22.

⁶¹ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 1; CVPIA PEIS, *supra*, at p. II-16, attached hereto and made a part hereof.

⁶² Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 1.

⁶³ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 3.

⁶⁴ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 1.

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expensive treatment. Consequently, more and more high quality blend water is required to render this recycled water usable for groundwater recharge and other activities. Some Regional Water Quality Control Boards of the State of California ("RWQCBs") have adopted water quality control plans for groundwater basins within their jurisdictions that include water quality objectives for maximum amounts of TDS. When inadequate amounts of high-quality SWP or CVP blend water are available to meet the water quality requirements of RWQCB orders for recycled water recharge, recycled water cannot be used for recharge and member agencies must consequently defer, or abandon, water recharge efforts. Loss of high quality water to blend with recycled water for recharge thus contributes to additional groundwater recharge losses and the growing overdraft of groundwater basins in Southern California and the San Joaquin Valley.⁶⁵

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Recycled water is also frequently used for landscape and agricultural irrigation, as well as industrial applications. However, such reuse becomes problematic at TDS concentrations of more than 1,000 mg/L. Some crops are also particularly sensitive to high TDS concentrations, and the use of high salinity recycled water may reduce the yields of these crops. In addition, concern for water quality in groundwater basins may lead to restrictions on the use of recycled water for irrigation on lands overlying those basins. In the past, reduced SWP supplies have been responsible for increased total dissolved solids concentrations in Metropolitan's blends, which has resulted in documented impacts to Metropolitan's ability to utilize recycled water and provide replenishment service to groundwater basins.⁶⁶ Further reductions in delivered SWP and CVP supplies would result in even greater impacts of this type in Metropolitan's and other service areas.⁶⁷

c. Increased Infiltration Of Poor Quality Water In The San Joaquin Valley

In the San Joaquin Valley, there are large areas of saline, poor quality groundwater adjacent to usable, higher quality groundwater.⁶⁸ When replenishment of groundwater is reduced, higher quality groundwater levels are drawn down and cause the poor-quality groundwater to be intermixed with good-quality groundwater, thus leading to significant groundwater quality impacts.⁶⁹

d. Runoff Affects Streams

There could also be potential impacts to local streams and wildlife caused by the heavier reliance upon water groundwater for irrigation.⁷⁰ Selenium levels are often high in runoff from farms due to concentrations found in the groundwater.⁷¹

⁶⁵ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 3.

⁶⁶ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 4.

⁶⁷ Metropolitan, *Impacts of Loss of SWP Supplies*, *supra*, at p. 3.

⁶⁸ 812 F. Supp. 2d at 1187.

⁶⁹ 812 F. Supp. 2d at 1187.

⁷⁰ 688 F. Supp. 2d at 1033-34.

⁷¹ See, e.g., Reclamation, Grassland Bypass Project, <http://www.usbr.gov/mp/grassland/>.

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7. **Air Quality**

Reduced delta water supplies impact air quality in areas that can no longer sustain the same acreage of agricultural crops because of the increased dust and particulate emissions resulting from land fallowing. There will also be emission impacts related to the greater amount of energy that is needed for groundwater well pumps to lift water from a lower depth due to the greater reliance on groundwater reserves.

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a. **Dust From Fallowing**

Water losses caused by reduced project exports can result in air quality reduction because fallowing land increases the levels of airborne dust and particulate matter.⁷⁴ Non-irrigated fields in this semi-arid region can often produce dust during frequent wind events that occur throughout the region compounding the already significant number of respiratory ailments associated with the San Joaquin Valley such as asthma. Increased airborne dust also increases the risk of exposure to a fungus that lives in the San Joaquin Valley soils, which causes the infection commonly referred to as "Valley Fever." Valley Fever typically causes an infection in the lungs but in some cases, the infection spreads throughout the body and can cause death.

The San Joaquin valley is designated as nonattainment for PM 2.5 and PM 10 under state standards, and for PM 2.5 under federal standards.⁷³ Those conditions are worsened by dust emissions resulting from water shortages. For example, additional fallowing and under-irrigation of agricultural lands that could result in Kern County Water Agency, one of the SWC member agencies, due to further restrictions on Delta exports could add hundreds of tons per year of wind-borne particulates in the air in the San Joaquin air basin.⁷⁴ The same emission effect occurs from reductions in CVP water supplies to members of the SLDMWA that serve agricultural uses.

As one study explained: "Wind-blown fugitive dust is a widespread problem in the arid west resulting from land disturbance or abandonment and increasingly limited water supplies. Soil-derived particles obstruct visibility, cause property damage and contribute to violations of health-based air quality standards for fine particles (PM-10). These dry lands are often difficult to revegetate, yet they may require immediate stabilization. ... As the forces exerted by the wind overcome the forces that bind soil particles to the surface, soil loss occurs. Dislodged soil particles may roll across the surface (creep), or they may bounce (saltation), dislodging further particles with each impact. This process leads to a cascade effect resulting in massive emissions of dust. Fugitive dust affects crops and native vegetation by abrading and burying plants and by blocking sunlight."⁷⁵

In addition to addressing such impacts under NEPA, Reclamation and the other federal agencies involved here must comply with the federal Clean Air Act, 42 U.S.C. § 7401 et seq.

⁷³ 713 F.Supp. 2d at 1152; Declaration of Russ Freeman (Doc 170) at 7-8, *Consol. Salmond Cares* (Jan. 27, 2010).
⁷⁴ San Joaquin Valley Unified Air Pollution Control District, <http://www.valleyair.org/acinfo/attainment.htm>.
⁷⁵ Beck letter, *supra*, at p. 3.
⁷⁶ *California Agriculture* 52(4):14-18. DOI: 10.3733/ca.v052n04p14. July-August 1998.

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Among other requirements, no federal agency is permitted to engage in an activity that does not conform to an implementation plan. 42 U.S.C. § 7506.

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b. Emissions From Pumping Lift Increases

Increased reliance on groundwater reserves for water supplies also results in increased energy use due to increased pumping lift needed to access deeper groundwater.⁷⁶

8. Soils, Geology, And Mineral Resources

Reduced Delta water supplies could impact soils, geology, and mineral resources, by causing, for example: 1) groundwater overdraft and the resulting subsidence of the soil; 2) the fallowing of lands and the resulting loss of topsoil; and 3) increased reliance on lower quality saline groundwater sources and the resulting increase in soil salinity.

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a. Subsidence

As previously noted, surface water shortages and corresponding increases in groundwater usage lead to groundwater overdraft, which occurs when pumping exceeds the safe yield of an aquifer.⁷⁷ When water is removed from the spaces between sediments, the soil compact and lose their volume.⁷⁸ Long-term impacts resulting from overdraft include land subsidence and damage to infrastructure, including water conveyance facilities.⁷⁹

b. Loss Of Topsoil

As discussed above, fallowing land increases the levels of airborne dust and particulate matter, which thus results in greater erosion and loss of topsoil resources from prime agricultural land.⁸⁰

c. Increased Reliance On Groundwater Degrades The Quality Of The Soil

As previously noted, increased reliance on groundwater reduces the quality of water applied to the soil because groundwater is often more saline than surface water supplies and the application of groundwater, in turn, increases soil salinity.⁸¹ This increased salinity in the soil degrades the quality of the soil for use in agriculture because it impacts the ability to grow certain salinity intolerant crops in those areas and affects the yield of many other crops.⁸²

⁷⁶ 812 F. Supp. 2d at 1187; Declaration of Russ Freeman (Doc. 170) at 6, *Consol. Salmonid Cases* (Jan. 27, 2010).

⁷⁷ 713 F. Supp. 2d at 1153.

⁷⁸ Declaration of Russ Freeman (Doc 170) at 5, *Consol. Salmonid Cases* (Jan. 27, 2010).

⁷⁹ 713 F. Supp. 2d at 1153; 812 F. Supp. 2d at 1187.

⁸⁰ 713 F. Supp. 2d at 1152.

⁸¹ 713 F. Supp. 2d at 1153; Declaration of Russ Freeman (Doc. 170) at 6, *Consol. Salmonid Cases* (Jan. 27, 2010).

⁸² See 713 F. Supp. 2d at 1153; MWD (Nov. 2008); Declaration of Russ Freeman (Doc. 170) at 6, *Consol. Salmonid Cases* (Jan. 27, 2010).

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9. Visual, Scenic, Or Aesthetic Resources

Aesthetics will be impacted from reduced water supplies due to urban decay from socioeconomic impacts, barren and decaying farmland, damage to infrastructure from subsidence, and lower reservoirs and water levels in the upper watersheds.

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a. Urban Decay Due To Economic Problems

As previously noted, socioeconomic impacts would result from reduced water supplies. A by-product of resulting poverty would be urban decay in many centers where displaced workers live.

b. Fallowed Land, Dead Crops, Destruction Of Permanent Orchard Crops

As also noted, reduced water supplies result in fallowed land and destruction of permanent orchard crops.⁸³ In these areas, an otherwise healthy and vibrant landscape, will be replaced with barren and desolate ground, potentially covered with dying or decaying plants.

c. Damage From Subsidence

Overdraft of groundwater reserves can result in land subsidence, which can also result in unsightly damage to infrastructure, including water conveyance facilities.⁸⁴

d. Lowering Of Reservoirs, Lack Of Flows In Upper Watersheds

Restrictions that call for additional, episodic releases from reservoirs in the upper watershed,⁸⁵ have potential to substantially alter upper watershed aesthetics by lowering reservoir levels and reducing releases and flows that otherwise would have occurred throughout the year.

10. Global Climate Change, Transportation, And Recreation

Reduced water supplies can impact climate change, due to greater energy being needed and reduce carbon uptake by plants. Transportation can be impacted by greater impediments from blowing dust, tumbleweeds, and bird-on-aircraft strikes. Recreation impacts are also likely due to impacts to reservoir and upper watershed flows.

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⁸³ 713 F. Supp. 2d at 1151-52.

⁸⁴ 713 F. Supp. 2d at 1153; 812 F. Supp. 2d at 1187; Erelwine X2 Declaration (Doc. 915) pp. 9-11, *Consol. Delta Svelt Cases* (June 16, 2011); Declaration of Russ Freeman (Doc. 170) at 5-6, *Consol. Salmonid Cases* (Jan. 27, 2010).

⁸⁵ See, e.g., 812 F. Supp. 2d at 1187.

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a. Climate Change

Increased reliance on groundwater reserves for water supply will result in increased energy usage due to increased pumping lifts needed to access deeper groundwater.⁸⁶

Land fallowing that results from failing to obtain sufficient water allocations to plant crops will also reduce the amount of carbon sequestration that would have otherwise occurred by planting crops, and would have thereby removed carbon dioxide and other greenhouse gases from the atmosphere.⁸⁷

In addition, use of hydroelectric power in California avoids over 29 million metric tons of carbon pollution each year—equal to the output of over 5.5 million passenger cars.⁸⁸ Because of the operational changes to project reservoir releases, reservoir carryover, and Delta export pumping needed for meeting flow requirements, there is potential for drastic changes in the timing and magnitude of project hydropower generation. This impacts the availability and cost of clean electricity, and it also requires energy managers to rely on unclean sources of electricity.

b. Transportation

Increased wind-blown and aerosolized dust and particulate matter from land fallowing, as previously discussed above, in turn impairs major transportation routes throughout the Central Valley.⁸⁹

Fallowing can also increase the incidence of bird-on-aircraft strikes, which impacts air transportation for both domestic and national security purposes.⁹⁰

Fallowed fields are an excellent habitat for tumbleweeds (Russian thistle), which break from the soil and are transported with the wind.⁹¹ Proliferation of these species can hamper highways and canals, among other deleterious effects.⁹²

c. Recreation

Lower reservoir levels affect recreation. Restrictions that call for additional, episodic releases from reservoirs in the upper watershed⁹³ have the potential to substantially alter usability of the upper watershed for recreational purposes by reducing releases and flows that otherwise

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⁸⁶ 812 F. Supp. 2d at 1183; Declaration of Russ Freeman (Doc. 170) at 6, *Consol. Salmonid Cases* (Jan. 27, 2010).

⁸⁷ See 812 F. Supp. 2d at 1187.

⁸⁸ *Risks Ahead: Flows and the Delta: The Consequences of Using a One-Dimensional Approach to Address a Complex Problem*, p.6 (March 2012), Hydrologic Modeling Results and Estimated Potential Hydropower Effects Due to the Implementation of the Sacramento Water Resources Control Board Delta Flow Criteria, December 2011, http://www.sfcwa.org/category/programs/delta_governance_water_management/.

⁸⁹ 713 F. Supp. 2d at 1152; Declaration of Russ Freeman (Doc. 170) at 7-8, *Consol. Salmonid Cases* (Jan. 27, 2010).

⁹⁰ 713 F. Supp. 2d at 1152.

⁹¹ Lincoln Smith, Biological Control of Russian Thistle (Tumbleweed) (2008) http://www.cwss.org/proceedingsfiles/2008/90_2008.pdf.

⁹² Lincoln Smith, Biological Control of Russian Thistle (Tumbleweed) (2008) http://www.cwss.org/proceedingsfiles/2008/90_2008.pdf.

⁹³ See, e.g., 812 F. Supp. 2d at 1183.

Appendix 1C: Comments from Regional and Local Agencies and Responses

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would have occurred throughout the year, and lowering reservoir levels throughout the projects' service areas.⁹⁴ Reduced water levels in these areas disrupt recreation and impact entire recreation-based industries that rely on visitors in upper watershed regions such as Shasta, Folsom, and Oroville Reservoirs.⁹⁵

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⁹⁴ Risks Ahead: Flows and the Delta: The Consequences of Using a One-Dimensional Approach to Address a Complex Problem, p.7 (March 2012); Hydrologic Modeling Results and Estimated Potential Hydropower Effects Due to the Implementation of the Sacramento Water Resources Control Board Delta Flow Criteria, December 2011, http://www.sfcwa.org/category/programs/delta_governance_water_management/.

⁹⁵ Risks Ahead: Flows and the Delta: The Consequences of Using a One-Dimensional Approach to Address a Complex Problem, p.7 (March 2012); Hydrologic Modeling Results and Estimated Potential Hydropower Effects Due to the Implementation of the Sacramento Water Resources Control Board Delta Flow Criteria, December 2011, http://www.sfcwa.org/category/programs/delta_governance_water_management/.

1 **1C.1.13.1 Responses to Comments from San Luis & Delta-Mendota Water**
2 **Authority, Westlands Water District, and San Joaquin River**
3 **Exchange Contractors Water Authority**

4 **SLDMWA WWD SJRECWA 1:** Comment noted.

5 **SLDMWA WWD SJRECWA 2:** The EIS presents a range of alternatives for the
6 future coordinated long-term operation of the CVP and SWP that provide a
7 variety of methods to avoid jeopardy to the continued existence of the species, or
8 avoid destruction or adverse effects to their critical habitat.

9 On October 9, 2015, the District Court granted a very short time extension to
10 address comments received during the public review period, and requires
11 Reclamation to issue a Record of Decision on or before January 12, 2016. This
12 current court ordered schedule does not provide sufficient time for Reclamation to
13 include additional alternatives, which would require recirculation of an additional
14 Draft EIS for public review and comment, nor does Reclamation believe
15 additional analysis is required to constitute a sufficient EIS. Reclamation is
16 committed to continue working toward improvements to the USFWS and NMFS
17 RPA actions through either the adaptive management process, Collaborative
18 Science and Adaptive Management Program (CSAMP) with the Collaborative
19 Adaptive Management Team (CAMT), or other similar ongoing or future efforts.

20 **SLDMWA WWD SJRECWA 3:** Reclamation is committed to continue working
21 toward improvements to the USFWS and NMFS RPA actions through either the
22 adaptive management process, Collaborative Science and Adaptive Management
23 Program (CSAMP) with the Collaborative Adaptive Management Team (CAMT),
24 or other similar ongoing or future efforts. The EIS provides a comparison of
25 projected adverse effects and benefits of Alternatives 1 through 5 and the No
26 Action Alternative. The EIS also provides a comparison of conditions of the No
27 Action Alternative and Alternatives 1 through 5 and the Second Basis of
28 Comparison. The NEPA analysis does not determine if the alternatives would
29 change the findings of the biological opinions in the determination of the
30 likelihood of the alternatives to cause jeopardy to the continued existence of the
31 species, or destroy or adversely affect their critical habitat.

32 **SLDMWA WWD SJRECWA 4:** As described in Section 3.3, Reclamation had
33 provisionally accepted the provisions of the 2008 USFWS BO and 2009 NMFS
34 BO, and was implementing the BOs at the time of publication of the Notice of
35 Intent in March 2012. Under the definition of the No Action Alternative in the
36 National Environmental Policy Act regulations (43 CFR 46.30), Reclamation's
37 NEPA Handbook (Section 8.6), and Question 3 of the Council of Environmental
38 Quality's Forty Most Asked Questions, the No Action Alternative could represent
39 a future condition with "no change" from current management direction or level
40 of management intensity, or a future "no action" conditions without
41 implementation of the actions being evaluated in the EIS. The No Action
42 Alternative in this EIS is consistent with the definition of "no change" from
43 current management direction or level of management. Therefore, the RPAs were
44 included in the No Action Alternative as Reclamation had been implementing the
45 BOs and RPA actions, except where enjoined, as part of CVP operations for

1 approximately three years at the time the Notice of Intent was issued (2008
 2 USFWS BO implemented for three years and three months, 2009 NMFS BO
 3 implemented for two years and nine months).

4 As described in Section 3.3, Reclamation included the Second Basis of
 5 Comparison to identify changes that would occur due to actions that would not
 6 have been implemented without Reclamation’s provisional acceptance of the
 7 BOs, as required by the District Court order. However, the Second Basis of
 8 Comparison is not consistent with the definition of the No Action Alternative
 9 used to develop the No Action Alternative for this EIS. Therefore, mitigation
 10 measures have not been considered for changes of alternatives as compared to the
 11 Second Basis of Comparison.

12 The No Action Alternative represents operations consistent with implementation
 13 of the 2008 and 2009 Biological Opinions. This No Action Alternative represents
 14 the current management direction and level of management intensity consistent
 15 with the explanation of the No Action Alternative included in Council of
 16 Environmental Quality’s Forty Most Asked Questions (Question 3). NEPA does
 17 not require agencies to mitigate impacts, nor does it require agencies to identify
 18 mitigation associated with the No Action Alternative.

19 Reclamation has a legal obligation to comply with the ESA. Section 7 requires
 20 Reclamation to insure that actions it authorizes, funds or carries out do not
 21 jeopardize the continued existence of any listed species and do not destroy or
 22 adversely modify designated critical habitat. This legal obligation was confirmed
 23 in the Central Valley Project Improvement Act. Most of Reclamation’s contracts
 24 with CVP water users limit Reclamation’s liability for shortages associated with
 25 meeting legal obligations of the CVP. Additionally, Section 9 of the ESA
 26 prohibits unauthorized take of listed species. DWR has chosen to ensure its
 27 compliance with the ESA through coordinated operation of the SWP with the
 28 CVP to implement the 2008 USFWS BO and 2009 NMFS BO.

29 Reclamation recognizes that some CVP water users either have initiated or are
 30 initiating programs to increase water supplies with separate environmental
 31 documentation (see Appendix 5D, Municipal and Industrial Water Demands and
 32 Supplies). Other CVP water users may implement future projects to increase
 33 water supplies, such as construction and operation of a desalination plants and
 34 water recycling programs. None of these future actions are currently authorized
 35 and are not being proposed by Reclamation as a part of this decision. Adoption of
 36 any of these types of these future actions, if authorized and funded by
 37 Reclamation, would require additional analysis under NEPA.

38 **SLDMWA WWD SJRECWA 5:** The SWAP model, a regional agricultural
 39 production and economic optimization model that simulates the decisions of
 40 farmers across 93 percent of agricultural land in California, was used to determine
 41 changes in agricultural land use and employment based upon changes in CVP and
 42 SWP water deliveries and cost-effective water supplies. This model is described
 43 in Appendix 12A, Statewide Agricultural Production Model (SWAP)
 44 Documentation. The SWAP model simulates changes in Year 2030 based upon

1 economic optimization factors related to crop selection, water supplies, and other
2 factors to maximize profits with consideration of resource constraints, technical
3 production relationships, and market conditions. The model indicated that even
4 with the cost of groundwater pumping from greater depths, the overall agricultural
5 production could be maintained. The EIS evaluates changes in 2030 under the
6 alternatives discussed Chapter 5 through 21 of the EIS.

7 It should be noted that Figures 7.15 through 7.60 in Chapter 7, Groundwater
8 Resources and Groundwater Quality, have been modified in the Final EIS to
9 correct an error that increased the changes in groundwater elevation by a factor of
10 3.25. This miscalculation was due to an error in a model post-processor that
11 generates the figures related to changing the values from CVHM Model output
12 from meters to feet. Therefore, the results in these figures and the related text in
13 Chapter 7 are less than reported in the Draft EIS. The figures and the text have
14 been revised in the Final EIS. No changes are required to the CVHM model. The
15 revised results in the figures and the text in Chapter 7 are consistent with the
16 findings of the SWAP model.

17 **SLDMWA WWD SJRECWA 6:** Please see response to Comment SLDMWA
18 WWD SJRECWA 32.

19 **SLDMWA WWD SJRECWA 7:** The No Action Alternative and Alternative 5
20 consider actions from both the 2008 USFWS BO and the 2009 NMFS BO in an
21 integrated manner. This EIS was prepared in response to a court order requiring
22 NEPA analysis on the environmental impacts of accepting and implementing the
23 RPA actions. The opportunity to integrate future biological opinions that would
24 meet the needs of both Delta Smelt and salmonids species lies with the agencies
25 responsible for developing those opinions; namely USFWS and NMFS. If
26 implementation of future biological opinions require it, Reclamation will conduct
27 a NEPA review of those future actions.

28 The No Action Alternative represents operations consistent with implementation
29 of the 2008 and 2009 Biological Opinions. This No Action Alternative represents
30 the current management direction and level of management intensity consistent
31 with the explanation of the No Action Alternative included in Council of
32 Environmental Quality's Forty Most Asked Questions (Question 3). NEPA does
33 not require agencies to mitigate impacts, nor does it require agencies to identify
34 mitigation associated with the No Action Alternative.

35 **SLDMWA WWD SJRECWA 8:** Please see responses to Comments SLDMWA
36 WWD SJRECWA 12 to SLDMWA WWD SJRECWA 63.

37 **SLDMWA WWD SJRECWA 9:** On October 9, 2015, the District Court granted
38 a very short time extension to address comments received during the public
39 review period, and requires Reclamation to issue a Record of Decision on or
40 before January 12, 2016. Reclamation has modified the Final EIS in response to
41 comments from SLDMWA WWD SJRECWA and other commenters; and will
42 use the Final EIS in the development of the Record of Decision.

1 **SLDMWA WWD SJRECWA 10:** Please see responses to Comments
2 SLDMWA WWD SJRECWA 64 to SLDMWA WWD SJRECWA 147.

3 **SLDMWA WWD SJRECWA 11:** Comment noted.

4 **SLDMWA WWD SJRECWA 12:** As discussed in response to Comment
5 SLDMWA WWD SJRECWA 3, the EIS provides a comparison of projected
6 adverse effects and benefits of Alternatives 1 through 5 and the No Action
7 Alternative. The EIS also provides a comparison of conditions under the No
8 Action Alternative and Alternatives 1 through 5 with the Second Basis of
9 Comparison. As described in Section 3.3, Reclamation included the Second Basis
10 of Comparison to identify changes that would occur due to actions that would not
11 have been implemented without Reclamation's provisional acceptance of the
12 BOs, as required by the District Court order.

13 The NEPA analysis does not determine if the alternatives would change the
14 findings of the biological opinions in the determination of the likelihood of the
15 alternatives to cause jeopardy to the continued existence of the species, or destroy
16 or adversely affect their critical habitat. Reclamation is committed to continue
17 working toward improvements to the USFWS and NMFS RPA actions through
18 either the adaptive management process, Collaborative Science and Adaptive
19 Management Program (CSAMP) with the Collaborative Adaptive Management
20 Team (CAMT), or other similar ongoing or future efforts.

21 **SLDMWA WWD SJRECWA 13:** The analysis in the EIS compares conditions
22 under Alternatives 1 through 5 with the No Action Alternative to identify
23 beneficial and adverse impacts for a broad range of physical, environmental, and
24 human resources. The NEPA analysis does not determine if the alternatives
25 would change the findings of the biological opinions in the determination of the
26 likelihood of the alternatives to cause jeopardy to the continued existence of the
27 species, or destroy or adversely affect their critical habitat.

28 **SLDMWA WWD SJRECWA 14:** The initial Proposed Action was defined in
29 the Notice of Intent, and is represented in Alternative 2 in the EIS. The Preferred
30 Alternative is described in Section 1.5 of Chapter 1, Introduction, of the Final
31 EIS. The Environmentally Preferred Alternative will be identified and disclosed
32 in the Record of Decision, as required by the CEQ regulations.

33 **SLDMWA WWD SJRECWA 15:** As described in Section 3.3, Reclamation had
34 provisionally accepted the provisions of the 2008 USFWS BO and 2009 NMFS
35 BO, and was implementing the BOs at the time of publication of the Notice of
36 Intent in March 2012. Under the definition of the No Action Alternative in the
37 National Environmental Policy Act regulations (43 CFR 46.30), Reclamation's
38 NEPA Handbook (Section 8.6), and Question 3 of the Council of Environmental
39 Quality's Forty Most Asked Questions, the No Action Alternative could represent
40 a future condition with "no change" from current management direction or level
41 of management intensity, or a future "no action" conditions without
42 implementation of the actions being evaluated in the EIS. The No Action
43 Alternative in this EIS is consistent with the definition of "no change" from
44 current management direction or level of management. Therefore, the RPAs were

1 included in the No Action Alternative as Reclamation had been implementing the
2 BOs and RPA actions, except where enjoined, as part of CVP operations for
3 approximately three years at the time the Notice of Intent was issued (2008
4 USFWS BO implemented for three years and three months, 2009 NMFS BO
5 implemented for two years and nine months).

6 As described in Section 3.3, Reclamation included the Second Basis of
7 Comparison to identify changes that would occur due to actions that would not
8 have been implemented without Reclamation's provisional acceptance of the
9 BOs, as required by the District Court order. However, the Second Basis of
10 Comparison is not consistent with the definition of the No Action Alternative
11 used to develop the No Action Alternative for this EIS. Therefore, mitigation
12 measures have not been considered for changes of alternatives as compared to the
13 Second Basis of Comparison.

14 **SLDMWA WWD SJRECWA 16:** As described in Section 3.3.1.2 of Chapter 3,
15 Description of Alternatives, several actions included in the 2008 USFWS BO and
16 2009 NMFS BO address items that were underway prior to publication of the
17 BOs, as summarized below.

- 18 • 2008 USFWS BO RPA Component 4, Habitat Restoration.
 - 19 – In 1987, Reclamation, DWR, CDFW, and the Suisun Resource
20 Conservation District (SRCDD) signed the Suisun Marsh Preservation
21 Agreement (SMPA), which contains provisions for Reclamation and
22 DWR to mitigate the adverse effects on Suisun Marsh channel water
23 salinity from the CVP and SWP operations and other upstream diversions.
24 The SMPA required Reclamation and DWR to prepare a timeline for
25 implementing the Plan of Protection for the Suisun Marsh and delineate
26 monitoring and mitigation requirements. In 2001, Reclamation, DWR,
27 USFWS, NMFS, CDFW, SRCDD, and CALFED directed the formation of
28 a charter group to develop a plan for Suisun Marsh that would balance the
29 needs of CALFED, the SMPA, and other plans by protecting and
30 enhancing existing land uses, existing waterfowl and wildlife values
31 including those associated with the Pacific Flyway, endangered species,
32 and CVP and SWP water project supply quality. In 2014, Reclamation,
33 CDFW, and USFWS adopted and initiated implementation of the Suisun
34 Marsh Habitat Management, Preservation, and Restoration Plan (Suisun
35 Marsh Management Plan). The USFWS and NMFS have issued
36 biological opinions for the Suisun Marsh Management Plan.
 - 37 – The No Action Alternative, Second Basis of Comparison, and
38 Alternatives 1 through 5 assumes that the Suisun Marsh Management Plan
39 will provide up to 7,000 acres of intertidal and associated subtidal habitat
40 in the Delta and Suisun Marsh with or without implementation of the 2008
41 USFWS BO. This would represent up to 87 percent (7,000 of 8,000 acres
42 of this habitat type referenced in the 2008 USFWS BO under the No
43 Action Alternative and Alternative 5.

- 1 • 2009 NMFS BO RPA Action I.1.3, Clear Creek Spawning Gravel
2 Augmentation.
- 3 – This effort was initiated in 1996 under the CVPIA Section 3406(b)(12).
4 The Clear Creek fisheries habitat restoration program is being
5 implemented by USFWS and Reclamation in accordance with CVPIA
6 (Reclamation 2011a). By the year 2020 the overall goal is to provide
7 347,288 square feet of usable spawning habitat from Whiskeytown Dam
8 downstream to the former McCormick-Saeltzer Dam, which is the amount
9 that existed before construction of Whiskeytown Dam. Between 1996 and
10 2009, a total of approximately 130,925 tons of spawning gravel was added
11 to the creek. The interim annual spawning gravel addition target is 25,000
12 tons per year, but due to a lack of funding, only an average of 9,358 tons
13 has been placed annually since 1996 (Reclamation 2013a).
- 14 – The No Action Alternative, Second Basis of Comparison, and
15 Alternatives 1 through 5 assume that the CVPIA program will continue
16 through 2030.
- 17 • 2009 NMFS BO RPA Action I.1.4, Spring Creek Temperature Control
18 Curtain Replacement.
- 19 – In accordance with SWRCB Order 91-0, temperature control actions were
20 initiated in the 1990s, including construction of the Spring Creek
21 Temperature Control Curtain in 1993. The curtain was damaged and
22 replaced as part of maintenance activities for the CVP facilities in 2011.
- 23 – This action was completed prior to publication of the Notice of Intent for
24 this EIS; therefore, this action is included in No Action Alternative,
25 Second Basis of Comparison, and Alternatives 1 through 5.
- 26 • 2009 NMFS BO RPA Action I.2.6, Restore Battle Creek for Winter-Run,
27 Spring-Run, and Central Valley Steelhead.
- 28 – The Battle Creek Salmon and Steelhead Restoration Project was initiated
29 in the 1999 in accordance with the CVPIA Anadromous Fish Restoration
30 Program. An Agreement in Principle was signed by Reclamation, NMFS,
31 USFWS, CDFW, and Pacific Gas & Electric Company to pursue a
32 restoration project for Battle Creek. A formal Memorandum of
33 Understanding was signed in 1999 to provide funding for the program.
- 34 – The program is consistent with provisions in the California State Salmon,
35 Steelhead Trout, and Anadromous Fisheries Program Act (California
36 Senate Bill 2261, 1990), CALFED Bay-Delta Ecosystem Restoration
37 Program Plan, Upper Sacramento River Fisheries and Riparian Habitat
38 Management Plan (developed in accordance with California Senate Bill
39 1086, 1989), 1990 CDFW Central Valley Salmon and Steelhead
40 Restoration and Enhancement Plan, 1990 CDFW Steelhead Restoration
41 Plan and Management Plan for California, 1993 CDFW Restoring Central
42 Valley Streams: A Plan for Action, NOAA 1997 Proposed Recovery Plan

- 1 for Sacramento River Winter-Run Chinook Salmon, and 1996 CDFW
2 Actions to Restore Central Valley Spring-Run Chinook Salmon.
- 3 – The Final EIS and the Record of Decision for the Battle Creek Salmon and
4 Steelhead Restoration Project were completed in July 2005 and January
5 2009, respectively.
- 6 – Construction was completed on the first phase in 2010. Construction will
7 be completed prior to 2030 to reestablish approximately 42 miles of
8 salmon and steelhead habitat on Battle Creek and an additional 6 miles of
9 habitat on tributaries. The project includes removal of five dams,
10 installation of new fish screens and fish ladders, provisions for increased
11 instream flows in Battle Creek, improved access roads and trails, and
12 decommissioned power plant canals that conveyed water between
13 tributaries.
- 14 – The Record of Decision and the funding agreements were completed prior
15 to publication of the 2009 NMFS BO. Construction was initiated prior to
16 publication of the Notice of Intent for this EIS, and is anticipated to be
17 complete before 2030. Therefore, this action is included in No Action
18 Alternative, Second Basis of Comparison, and Alternatives 1 through 5.
- 19 • 2009 NMFS BO RPA Action I.3.1, Operate Red Bluff Diversion Dam with
20 Gates Out.
- 21 – The Final EIS and Record of Decision were completed in May 2008 for
22 the Tehama-Colusa Canal Authority for the Tehama-Colusa Canal Fish
23 Passage Improvement Project which included construction of the new
24 intake at the Red Bluff Diversion Dam site and removal of the dam gates
25 from the Sacramento River water. This action was initiated following the
26 issuance of the 1993 NMFS BO that reduced the time that water could be
27 diverted from the Sacramento River using the Diversion Dam gates.
- 28 – Construction was initiated in March 2010 and funded by the 2009
29 American Recovery and Reinvestment Act. The new Red Bluff Pumping
30 Plant began operation in 2012, and the gates no longer block the flow of
31 water in the Sacramento River.
- 32 – These existing facilities are included in No Action Alternative, Second
33 Basis of Comparison, and Alternatives 1 through 5.
- 34 • 2009 NMFS BO RPA Action I.5, Funding for CVPIA Anadromous Fish
35 Screen Program.
- 36 – This effort was initiated over 20 years ago under the CVPIA Section
37 3406(b)(21).
- 38 – The No Action Alternative, Second Basis of Comparison, and Alternatives
39 1 through 5 assume continued implementation of the program until the
40 CVPIA program objectives are met which may or may not occur prior to
41 2030.

- 1 • 2009 NMFS BO RPA Action I.6.1, Restoration of Floodplain Habitat; and
 2 Action I.6.2, Near-Term Actions at Liberty Island/Lower Cache Slough and
 3 Lower Yolo Bypass; Action I.6.3, Lower Putah Creek Enhancements; Action
 4 I.6.4, Improvements to Lisbon Weir; and Action I.7, Reduce Migratory
 5 Delays and Loss of Salmon, Steelhead, and Sturgeon at Fremont Weir and
 6 Other Structures in the Yolo Bypass.
 - 7 – These actions are addressed in the ongoing Yolo Bypass Salmonid Habitat
 8 Restoration and Fish Passage Implementation Plan (Implementation Plan)
 9 that has been initiated by Reclamation and DWR.
 - 10 – The No Action Alternative, Second Basis of Comparison, and Alternatives
 11 1 through 5 assume completion of this Implementation Plan by 2030 with
 12 or without implementation of the 2009 NMFS BO.
 - 13 – In response to this comment, a sensitivity analysis was included in the
 14 Final EIS (Appendix 5E), that presents the results of CalSim II model runs
 15 with and without implementation of the Yolo Bypass Salmonid Habitat
 16 Restoration and Fish Passage Implementation Plan.
- 17 • 2009 NMFS BO RPA Action II.1, Lower American River Flow Management.
 - 18 – In 2006, Reclamation began operating in accordance with the American
 19 River Flow Management Standard (FMS), as described in Appendix 3A,
 20 No Action Alternative: Central Valley Project and State Water Project
 21 Operations. The FMS operations were initiated to enhance the protections
 22 provided by SWRCB D-893 in accordance with an agreement between
 23 Reclamation, USFWS, NMFS, and CDFW.
 - 24 – The No Action Alternative, Second Basis of Comparison, and Alternatives
 25 1 through 5 assume continued operations under the FMS in 2030.

26 **SLDMWA WWD SJRECWA 17:** Reclamation was directed by the District
 27 Court to remedy its failure to conduct a NEPA analysis when it accepted and
 28 implemented the 2008 USFWS BO RPA and the 2009 NMFS BO RPA pursuant
 29 to the Federal Endangered Species Act of 1973 (ESA) as amended (United States
 30 Code [U.S.C.] 1531 ET SEQ.). The BOs did not address the Friant Division of
 31 the CVP; therefore, the EIS does not address the Friant Division of the CVP.

32 **SLDMWA WWD SJRECWA 18:** Please see response to Comment SLDMWA
 33 WWD SJRECWA 4.

34 **SLDMWA WWD SJRECWA 19:** Please see response to Comment SLDMWA
 35 WWD SJRECWA 16.

36 **SLDMWA WWD SJRECWA 20:** As described in Section 3.3, Reclamation had
 37 provisionally accepted the provisions of the 2008 USFWS BO and 2009 NMFS
 38 BO, and was implementing the BOs at the time of publication of the Notice of
 39 Intent in March 2012. Under the definition of the No Action Alternative in the
 40 National Environmental Policy Act regulations (43 CFR 46.30), Reclamation’s
 41 NEPA Handbook (Section 8.6), and Question 3 of the Council of Environmental
 42 Quality’s Forty Most Asked Questions, the No Action Alternative could represent

1 a future condition with “no change” from current management direction or level
2 of management intensity, or a future “no action” conditions without
3 implementation of the actions being evaluated in the EIS. The No Action
4 Alternative in this EIS is consistent with the definition of “no change” from
5 current management direction or level of management. Therefore, the RPAs were
6 included in the No Action Alternative as Reclamation had been implementing the
7 BOs and RPA actions, except where enjoined, as part of CVP operations for
8 approximately three years at the time the Notice of Intent was issued (2008
9 USFWS BO implemented for three years and three months, 2009 NMFS BO
10 implemented for two years and nine months).

11 As described in Section 3.3, Reclamation included the Second Basis of
12 Comparison to identify changes that would occur due to actions that would not
13 have been implemented without Reclamation’s provisional acceptance of the
14 BOs, as required by the District Court order. However, the Second Basis of
15 Comparison is not consistent with the definition of the No Action Alternative
16 used to develop the No Action Alternative for this EIS. Therefore, mitigation
17 measures have not been considered for changes of alternatives as compared to the
18 Second Basis of Comparison.

19 The No Action Alternative represents operations consistent with implementation
20 of the 2008 and 2009 Biological Opinions. This No Action Alternative represents
21 the current management direction and level of management intensity consistent
22 with the explanation of the No Action Alternative included in Council of
23 Environmental Quality’s Forty Most Asked Questions (Question 3). NEPA does
24 not require agencies to mitigate impacts, nor does it require agencies to identify
25 mitigation associated with the No Action Alternative.

26 Reclamation has a legal obligation to comply with Section 7 of the ESA. Section
27 7 requires Reclamation to insure that actions it authorizes, funds or carries out do
28 not jeopardize the continued existence of any listed species and do not destroy or
29 adversely modify designated critical habitat. This legal obligation was confirmed
30 in the Central Valley Project Improvement Act. Most of Reclamation’s contracts
31 with CVP water users limit Reclamation’s liability for shortages associated with
32 meeting legal obligations of the CVP. Additionally, ESA prohibits unauthorized
33 take of listed species. DWR has chosen to ensure its compliance with the ESA
34 through coordinated operation of the SWP with the CVP and to implement the
35 2008 USFWS BO and 2009 NMFS BO.

36 Reclamation recognizes that some CVP water users either have initiated or are
37 initiating programs to increase water supplies with separate environmental
38 documentation (see Appendix 5D, Municipal and Industrial Water Demands and
39 Supplies). Other CVP water users may implement future projects to increase
40 water supplies, such as construction and operation of a desalination plants and
41 water recycling programs. None of these future actions are currently authorized
42 and are not being proposed by Reclamation as a part of this decision. Adoption of
43 any of these types of these future actions, if authorized and funded by
44 Reclamation, would require additional analysis under NEPA.

1 **SLDMWA WWD SJRECWA 21:** Please see response to Comment SLDMWA
 2 WWD SJRECWA 20.

3 **SLDMWA WWD SJRECWA 22:** The range of alternatives (Alternatives 1
 4 through 5) was identified through consideration of concepts identified in the
 5 scoping process, through comments received during preparation of the EIS, and
 6 considerations by Reclamation. The concepts were evaluated with respect to
 7 screening criteria defined in the purpose of the action (see Chapter 2, Purpose and
 8 Need), a determination if the concept addressed one or more significant issues,
 9 and if the concept was included in one or more alternatives (see Table 3.1 in
 10 Chapter 3, Description of Alternatives). Two of the alternatives, No Action
 11 Alternative and Alternative 5, consider actions from both of the 2008 USFWS BO
 12 and 2009 NMFS BO in an integrated manner. This EIS was prepared in response
 13 to a court order requiring NEPA analysis on the environmental impacts of
 14 accepting and implementing the RPA actions. The opportunity to integrate future
 15 biological opinions that would meet the needs of both Delta Smelt and salmonids
 16 species lies with the agencies responsible for developing those opinions, namely
 17 USFWS and NMFS. If implementation of future biological opinions require it,
 18 Reclamation will conduct a NEPA require of those future actions

19 **SLDMWA WWD SJRECWA 23:** Reclamation was directed by the District
 20 Court to remedy its failure to conduct a NEPA analysis when it accepted and
 21 implemented the 2008 USFWS BO RPA and the 2009 NMFS BO RPA pursuant
 22 to the Federal Endangered Species Act of 1973 (ESA) as amended (United States
 23 Code [U.S.C.] 1531 et. seq.). In order to satisfy the Court’s directive,
 24 Reclamation has analyzed operation of the CVP, in coordination with the
 25 operation of the SWP, consistent with the BOs, as well as alternatives which
 26 represent potential modifications to the continued long-term operation of the CVP
 27 in coordination with the SWP.

28 The No Action Alternative represents operations consistent with implementation
 29 of the 2008 and 2009 Biological Opinions. This No Action Alternative represents
 30 the current management direction and level of management intensity consistent
 31 with the explanation of the No Action Alternative included in Council of
 32 Environmental Quality’s Forty Most Asked Questions (Question 3). NEPA does
 33 not require agencies to mitigate impacts, nor does it require agencies to identify
 34 mitigation associated with the No Action Alternative.

35 The purpose of the action, as described in Chapter 2, Purpose and Need, of the
 36 EIS, considers the purposes for which the CVP was authorized, and as amended
 37 by CVPIA, with a provision to enable Reclamation and DWR to satisfy their
 38 contractual obligations to the fullest extent possible, in accordance with the
 39 authorized purposes of the CVP and SWP, as well as the regulatory limitations on
 40 CVP and SWP operations, including applicable state and federal laws and water
 41 rights.

42 Reclamation has a legal obligation to comply with Section 7 of the ESA. Section
 43 7 requires Reclamation to insure that actions it authorizes, funds or carries out do
 44 not jeopardize the continued existence of any listed species and do not destroy or

1 adversely modify designated critical habitat. This legal obligation was confirmed
2 in the Central Valley Project Improvement Act. Most of Reclamation's contracts
3 with CVP water users limit Reclamation's liability for shortages associated with
4 meeting legal obligations of the CVP. Additionally, ESA prohibits unauthorized
5 take of listed species. DWR has chosen to ensure its compliance with the ESA
6 through coordinated operation of the SWP with the CVP and to implement the
7 2008 USFWS BO and 2009 NMFS BO.

8 Reclamation recognizes that some CVP water users either have initiated or are
9 initiating programs to increase water supplies with separate environmental
10 documentation (see Appendix 5D, Municipal and Industrial Water Demands and
11 Supplies). Other CVP water users may implement future projects to increase
12 water supplies, such as construction and operation of a desalination plants and
13 water recycling programs. None of these future actions are currently authorized
14 and are not being proposed by Reclamation as a part of this decision. Adoption of
15 any of these types of these future actions, if authorized and funded by
16 Reclamation, would require additional analysis under NEPA.

17 **SLDMWA WWD SJRECWA 24:** The need statement in Chapter 2
18 acknowledges that potential modifications to the coordinated operation of the CVP
19 and SWP analyzed in the EIS process should be consistent with the intended purpose
20 of the action, be within the scope of Reclamation's legal authority and jurisdiction, be
21 economically and technologically feasible, and avoid the likelihood of jeopardizing
22 listed species or resulting in the destruction or adverse modification of critical habitat
23 in compliance with the requirements of Section 7(a)(2) of the Endangered Species
24 Act.

25 **SLDMWA WWD SJRECWA 25:** The EIS analysis compares conditions under
26 a range of alternatives (Alternatives 1 through 5) with the No Action Alternative
27 to identify beneficial and adverse impacts for a broad range of physical,
28 environmental, and human resources. A reasonable range of alternatives includes
29 technically and economically feasible alternatives to address the purpose and need
30 for the action (40 CFR 1502.14). However, the range of alternatives can be
31 limited if the alternatives analyzed address the full spectrum of alternatives
32 (Question 1b of CEQ Forty Most Asked Questions). The range of alternative
33 concepts were evaluated with respect to screening criteria defined in the purpose
34 of the action (see Chapter 2, Purpose and Need), a determination if the concept
35 addressed one or more significant issues, and if the concept was included in one
36 or more alternatives (Table 3.1 in Chapter 3, Description of Alternatives). The
37 NEPA analysis does not determine if the alternatives would change the findings
38 of the biological opinions in the determination of the likelihood of the alternatives
39 to cause jeopardy to the continued existence of the species, or destroy or
40 adversely affect their critical habitat.

41 **SLDMWA WWD SJRECWA 26:** The No Action Alternative and Alternative 5
42 consider actions from both of the 2008 USFWS BO and 2009 NMFS BO in an
43 integrated manner. With respect to the potential conflict described in this
44 comment, the EIS impact assessment of the No Action Alternative and
45 Alternative 5 do indicate that reservoir releases to meet fall Delta outflow in wet

1 and above normal years would reduce carryover storage and potentially reduce
 2 the ability to meet temperature objectives downstream of the reservoirs.
 3 However, the No Action Alternative and Alternative 5 also include fish passage
 4 around CVP dams to provide upstream habitat with lower water temperatures.

5 **SLDMWA WWD SJRECWA 27:** The comparative tables in Chapter 3,
 6 Description of Alternatives, and Executive Summary have been modified in the
 7 Final EIS.

8 **SLDMWA WWD SJRECWA 28:** Given the complexity of the water system and
 9 associated aquatic ecosystem, tools are not available to reliably quantify the
 10 numbers of individuals of species, the viability of species populations, and the
 11 amount and quality of critical habitat. The analysis in the Draft EIS relied on
 12 modeling tools and qualitative analyses to provide an indication of these attributes
 13 for comparison among alternatives rather than attempting absolute quantification.
 14 However, numerical indications of potential changes in species abundance and
 15 habitat availability are presented throughout the impact analysis in the Draft EIS.
 16 For example, the two life cycle models used to evaluate effects on winter-run
 17 Chinook Salmon provide output in terms of expected escapement. Similarly,
 18 SALMOD and the Egg Mortality Model provide outputs that indicate potential
 19 changes in salmon abundance. Habitat quality was addressed in terms of water
 20 temperature and Weighted Useable Area (WUA) for salmonids and the fall
 21 abiotic index was used to quantify potential differences in Delta Smelt habitat.

22 The NEPA analysis does not determine if the alternatives would change the
 23 findings of the biological opinions in the determination of the likelihood of the
 24 alternatives to cause jeopardy to the continued existence of the species, or destroy
 25 or adversely affect their critical habitat.

26 **SLDMWA WWD SJRECWA 29:** The tables referenced in the comment
 27 represent a summary of the impact conclusions for each of the species evaluated.
 28 These conclusion statements, as pointed out in the comment, often indicate little
 29 distinction in the performance of an alternative relative to another. This is
 30 generally because the results of the quantitative analyses are sufficiently similar
 31 that a clear difference between the alternatives cannot be made or the uncertainty
 32 associated with the outcomes precludes a clear distinction among alternatives.
 33 The impact conclusions for each species in Chapter 9 and the summarized
 34 conclusions provided in table ES.1 and ES.2 have been revised to more definitely
 35 state the conclusions and provide decision makers and the public a clearer
 36 indication the magnitude of the differences. Also, please see response to
 37 Comment SLDMWA WWD SJRECWA 27.

38 **SLDMWA WWD SJRECWA 30:** The EIS analyzed the alternatives at 2030 to
 39 consider full implementation of the 2008 USFWS BO and 2009 NMFS BO at
 40 2030; and full implementation of the provisions in each of the alternatives, such
 41 as completion of predation control plans in Alternatives 3 and 4 or fish passage
 42 programs in Alternative 5 and the No Action Alternative.

43 If the analyses were conducted at the present time, the existing conditions also
 44 would include implementation of the operational provisions of the 2008 USFWS

1 BO RPA and the 2009 NMFS BO RPA which had been provisionally accepted by
2 Reclamation prior to the publication of the Notice of Intent in 2012.

3 **SLDMWA WWD SJRECWA 31:** More details have been included in Section
4 5.3.3 of Chapter 5, Surface Water Resources and Water Supplies, and Section
5 6.3.3.6 of Chapter 6, Surface Water Quality, in the Final EIS to describe historical
6 responses by CVP and SWP to recent drought conditions and associated SWRCB
7 requirements, including reductions in recent deliveries of CVP and SWP water. It
8 is recognized that in the short-term, responses to reduced CVP and SWP water
9 deliveries could be different than over the long-term. For example, during the
10 recent drought some areas relied upon crop idling because expansion of
11 groundwater wellfields was not easily implemented in the short-term. The EIS
12 analysis is considering the long-term changes by 2030, including agricultural
13 water supplies based upon long-term economic modeling (see results of SWAP
14 model runs in Chapter 12, Agricultural Resources). The SWAP model indicated
15 that even with the cost of groundwater pumping from greater depths, the overall
16 agricultural production could be maintained.

17 The EIS includes the comparison of the No Action Alternative to the Second
18 Basis of Comparison to indicate changes related to implementation of the 2008
19 USFWS BO and 2009 NMFS BO.

20 It is understood that in any one year with drought conditions, water users may
21 make short-term choices that could involve more crop idling than increased use of
22 groundwater. However, the analysis of groundwater use in Chapter 7,
23 Groundwater Resources and Groundwater Quality, represent long-term operation
24 assumptions that would occur by 2030. The agricultural analysis presented in
25 Chapter 12, Agricultural Resources, indicated that economically, groundwater
26 would continue to be used as compared to crop idling or land fallowing on a long-
27 term basis by 2030.

28 **SLDMWA WWD SJRECWA 32:** In response to this and similar comments,
29 additional discussion has been provided in the Final EIS to better capture recent
30 scientific information and to further acknowledge the scientific uncertainty
31 associated with the information used to both formulate the analyses and qualify
32 the conclusions. This additional text is intended to supplement the discussions of
33 uncertainty already presented in Chapter 9 of the Draft EIS and Appendices 9C
34 through 9O. These additions can be found in the discussion of analysis methods
35 and in the impact conclusions where appropriate.

36 **SLDMWA WWD SJRECWA 33:** Historically, many water users have been
37 conjunctively use groundwater and surface water by increasing groundwater use
38 when CVP and SWP water supplies are reduced. The urban water management
39 plans present these types of programs for the 2030 conditions. As discussed in
40 the response to Comment SLDMWA WWD SJRECWA 5, the SWAP model
41 indicated that even with the cost of groundwater pumping from greater depths, the
42 overall agricultural production could be maintained.

43 It should be noted that Figures 7.15 through 7.60 in Chapter 7, Groundwater
44 Resources and Groundwater Quality, have been modified in the Final EIS to

1 correct an error that increased the changes in groundwater elevation by a factor of
2 3.25. This miscalculation was due to an error in a model post-processor that
3 generates the figures related to changing the values from CVHM Model output
4 from meters to feet. Therefore, the results in these figures and the related text in
5 Chapter 7 are less than reported in the Draft EIS. The figures and the text have
6 been revised in the Final EIS. No changes are required to the CVHM model. The
7 revised results in the figures and the text in Chapter 7 are consistent with the
8 findings of the SWAP model.

9 **SLDMWA WWD SJRECWA 34:** Groundwater Sustainability Agencies will
10 respond differently in the development and implementation of each Groundwater
11 Sustainability Plan (GSP). Different regions of California will have different
12 levels of progress depending upon ongoing programs and facilities. Depending
13 upon the GSP, full implementation of groundwater sustainable actions may not be
14 possible until facilities are constructed to provide replacement water supplies for
15 current groundwater use. Construction of those facilities, following review of the
16 GSP by DWR, could require several years for environmental review, design,
17 permitting, and construction. Therefore, it would be speculative to assume that
18 the GSP objectives can be fully met prior to 2030 when the GSPs have not been
19 completed; and the implementation actions may require a timeframe longer than
20 2030. It is acknowledged that following full implementation of the GSPs,
21 continued long-term overdrafting of the groundwater would not be allowed.

22 **SLDMWA WWD SJRECWA 35:** Historically, many water users have been
23 conjunctively using groundwater and surface water by increasing groundwater use
24 when CVP and SWP water is reduced. The urban water management plans
25 present these types of programs for the 2030 conditions. As discussed in the
26 response to Comment SLDMWA WWD SJRECWA 5, the SWAP model
27 indicated that even with the cost of groundwater pumping from greater depths, the
28 overall agricultural production could be maintained.

29 It is recognized that in the short-term, responses to reduced CVP and SWP water
30 deliveries could be different than over the long-term. For example, during the
31 recent drought some areas relied upon crop idling because expansion of
32 groundwater wellfields was not easily implemented in the short-term. The EIS
33 analysis is considering the long-term changes by 2030, including agricultural
34 water supplies based upon long-term economic modeling (see results of SWAP
35 model runs in Chapter 12, Agricultural Resources). The SWAP model indicated
36 that even with the cost of groundwater pumping from greater depths, the overall
37 agricultural production could be maintained.

38 It should be noted that Figures 7.15 through 7.60 in Chapter 7, Groundwater
39 Resources and Groundwater Quality, have been modified in the Final EIS to
40 correct an error that increased the changes in groundwater elevation by a factor of
41 3.25 due to an error in a model post-processor that generates the figures related to
42 changing the values from CVHM Model output from meters to feet. Therefore,
43 the results in these figures and the related text in Chapter 7 are less than reported
44 in the Draft EIS. The figures and the text have been revised in the Final EIS. No

1 changes are required to the CVHM model. The revised results in the figures and
2 the text in Chapter 7 are consistent with the findings of the SWAP model.

3 **SLDMWA WWD SJRECWA 36:** The comment is consistent with the analysis
4 related to subsidence in Section 7.4 of Chapter 7, Groundwater Resources and
5 Groundwater Quality, of the EIS.

6 **SLDMWA WWD SJRECWA 37:** Please refer to responses to Comments
7 SLDMWA WWD SJRECWA 5 and SLDMWA WWD SJRECWA 33.

8 **SLDMWA WWD SJRECWA 38:** Please refer to responses to Comments
9 SLDMWA WWD SJRECWA 5, SLDMWA WWD 31, and SLDMWA WWD
10 SJRECWA 35.

11 **SLDMWA WWD SJRECWA 39:** As described in responses to Comments
12 SLDMWA WWD SJRECWA 5 and SLDMWA WWD SJRECWA 33, the SWAP
13 analysis indicates that long-term regional agricultural land use, production, and
14 employment would be similar in the alternatives and the Second Basis of
15 Comparison. Therefore, socioeconomic conditions in the agricultural
16 communities would be similar in 2030 within the range of alternatives.

17 It is recognized that in the short-term, responses to reduced CVP and SWP water
18 deliveries could be different than over the long-term. For example, during the
19 recent drought some areas relied upon crop idling because expansion of
20 groundwater wellfields was not easily implemented in the short-term. This led to
21 job losses. The EIS analysis is considering the long-term changes by 2030,
22 including changes in agricultural water supplies based upon long-term economic
23 modeling (see results of SWAP model runs in Chapter 12, Agricultural
24 Resources). The SWAP model indicated that even with the cost of groundwater
25 pumping from greater depths, the overall agricultural production could be
26 maintained.

27 **SLDMWA WWD SJRECWA 40:** As described in responses to Comments
28 SLDMWA WWD SJRECWA 5 and SLDMWA WWD SJRECWA 33, the SWAP
29 analysis indicates that long-term regional agricultural land use, production, and
30 employment would be similar in the alternatives and the Second Basis of
31 Comparison. Therefore, environmental justice conditions in the agricultural
32 communities would be similar in 2030 within the range of alternatives.

33 It is recognized that in the short-term, responses to reduced CVP and SWP water
34 deliveries could be different than over the long-term. For example, during the
35 recent drought some areas relied upon crop idling because expansion of
36 groundwater wellfields was not easily implemented in the short-term. This led to
37 job losses. The EIS analysis is considering the long-term changes by 2030,
38 including changes in agricultural water supplies based upon long-term economic
39 modeling (see results of SWAP model runs in Chapter 12, Agricultural
40 Resources). The SWAP model indicated that even with the cost of groundwater
41 pumping from greater depths, the overall agricultural production could be
42 maintained.

1 **SLDMWA WWD SJRECWA 41:** As described in responses to Comments
 2 SLDMWA WWD SJRECWA 5 and SLDMWA WWD SJRECWA 35, the SWAP
 3 analysis indicates that long-term regional agricultural land use, production, and
 4 employment would be similar in the alternatives and the Second Basis of
 5 Comparison. Therefore, air quality conditions in the agricultural communities
 6 would be similar.

7 **SLDMWA WWD SJRECWA 42:** The CVP and SWP operations prioritize
 8 meeting federal and state regulatory requirements and deliveries to senior water
 9 rights holders and refuge Level 2 water supplies. The modeling analyses
 10 presented in the EIS include these prioritizations for long-term operation of the
 11 CVP and SWP using an 82-year hydrology analyzed with the CalSim II model,
 12 including delivery of Level 2 refuge water supplies in accordance with the
 13 CVPIA. This analytical approach results in low water storage elevations in CVP
 14 and SWP reservoirs and low deliveries to CVP agricultural water service
 15 contractors located to the south of the Delta in critical dry periods. The modeled
 16 operations do not include changes in SWRCB requirements intended to reduce the
 17 effects of extreme flood or drought events, such as the recent changes in CVP and
 18 SWP drought operations.

19 Droughts have occurred throughout California’s history, and are constantly
 20 shaping and innovating the ways in which Reclamation and DWR balance both
 21 public health standards and urban and agricultural water demands while
 22 protecting the Delta ecosystem and its inhabitants. The most notable droughts in
 23 recent history are the droughts that occurred in 1976-77, 1987-92, and the
 24 ongoing drought. More details have been included in Section 5.3.3 of Chapter 5,
 25 Surface Water Resources and Water Supplies, and Section 6.3.3.6 of Chapter 6,
 26 Surface Water Quality, in the Final EIS to describe historical responses by CVP
 27 and SWP to these drought conditions, including reductions in recent deliveries of
 28 CVP water to the refuges and water service contractors.

29 **SLDMWA WWD SJRECWA 43:** The EIS analysis of groundwater effects in
 30 the San Francisco Bay Area, Central Coast, and Southern California regions is
 31 difficult for two reasons. The CalSim II model water deliveries to these regions
 32 are provided at a large regional scale, and it is not possible to determine the
 33 deliveries by groundwater basin. In addition, there are no available consistent
 34 regional groundwater models that could be used for the CVP and SWP service
 35 areas in the San Francisco Bay Area, Central Coast, and Southern California
 36 regions. Therefore, a qualitative analysis was conducted in the EIS for changes in
 37 groundwater conditions and quality and related subsidence.

38 Additional description of the qualitative methodology used in these areas has been
 39 added to Section 7.4 of Chapter 7, Groundwater Resources and Groundwater
 40 Quality. CVP and SWP water delivery information that is currently provided in
 41 Appendix 5A, Section C, CalSim II and DSM2 Model Results, has also been
 42 added to Chapter 7.

43 **SLDMWA WWD SJRECWA 44:** The alternatives and the Second Basis of
 44 Comparison are all compared with the same future climate and growth projections

1 at 2030. The environmental analysis does not compare the future conditions
2 under the alternatives and Second Basis of Comparison to existing conditions.
3 The commenter’s “Interpretation B” is correct. The explanation of the
4 methodology is included Appendix 7A, Groundwater Model Documentation.

5 **SLDMWA WWD SJRECWA 45:** Additional information has been included in
6 Section 7.4.2 of Chapter 7, Groundwater Resources and Groundwater Quality, to
7 qualitatively discuss groundwater changes between existing conditions and 2030
8 conditions. As described in the response to Comment SLDMWA WWD
9 SJRECWA 44, the EIS analysis involves comparison of the No Action
10 Alternative, Second Basis of Comparison, and Alternatives 1 through 5 at Year
11 2030.

12 **SLDMWA WWD SJRECWA 46:** The text on page 7-112 of the Draft EIS has
13 been modified in the Final EIS to provide more clarity of the use of qualitative
14 analyses for potential changes in subsidence.

15 **SLDMWA WWD SJRECWA 47:** There are no acceptable regional groundwater
16 models available; therefore, the analysis was qualitative. Additional text in the
17 Final EIS has been added to the impact analysis that provides additional
18 groundwater quality information.

19 **SLDMWA WWD SJRECWA 48:** The CalSim II post-processor tool was
20 developed in the initial phase of the EIS preparation. Results for flows in
21 Steamboat Slough were included to determine if there was any changes in the
22 North Delta conditions under the alternatives. Millerton Lake results were
23 included to indicate that there were no changes in the operations of the CVP
24 Friant Division for the coordinated long-term operation of the CVP and SWP.

25 **SLDMWA WWD SJRECWA 49:** More details have been included in Section
26 9.4.3 of Chapter 9, Fish and Aquatic Resources, in the Final EIS to qualitatively
27 responses to RPA actions not included in the CalSim II model in the No Action
28 Alternative and Alternatives 2 and 5.

29 **SLDMWA WWD SJRECWA 50:** The additional water demand in the
30 Sacramento Valley has been identified in approved general plans and is included
31 in the adopted urban water management plans of these communities. The
32 increased demand are projected to be met through existing water rights in El
33 Dorado, Nevada, Placer, and Sacramento counties and full use of CVP water
34 contracts in Sacramento County. The water rights are senior to water rights held
35 by the CVP and SWP and would need to be fulfilled in the future. Therefore, the
36 additional water demands are included in the No Action Alternative, Second Basis
37 of Comparison, and Alternatives 1 through 5.

38 **SLDMWA WWD SJRECWA 51:** The CVP and SWP operations prioritize
39 meeting federal and state regulatory requirements and deliveries to senior water
40 rights holders. The modeling analyses presented in the EIS include these
41 prioritizations for long-term operation of the CVP and SWP without inclusion of
42 changes that could be developed for specific extreme flood or drought events.

1 Water is delivered every year under the water rights in the 82-year hydrology
2 analyzed with the CalSim II model in the EIS.

3 As described in Section 5.4.1.1.1 of Chapter 5, Surface Water Resources and
4 Water Supplies, under extreme hydrologic and operational conditions where there is
5 not enough water supply to meet all requirements, CalSim II utilizes a series of
6 operating rules to reach a solution to allow for the continuation of the simulation. It
7 is recognized that these operating rules are a simplified version of the very complex
8 decision processes that CVP and SWP operators would use in actual extreme
9 conditions. Therefore, model results and potential changes under these extreme
10 conditions should be evaluated on a comparative basis between alternatives and are
11 an approximation of extreme operational conditions. As an example, CalSim II
12 model results show simulated occurrences of extremely low storage conditions at
13 CVP and SWP reservoirs during critical drought periods when storage is at dead pool
14 levels at or below the elevation of the lowest level outlet. Simulated occurrences of
15 reservoir storage conditions at dead pool levels may occur coincidentally with
16 simulated impacts that are determined to be potentially significant. When reservoir
17 storage is at dead pool levels, there may be instances in which flow conditions fall
18 short of minimum flow criteria, salinity conditions may exceed salinity standards,
19 diversion conditions fall short of allocated diversion amounts, and operating
20 agreements are not met.

21 Reclamation is aware of the storage and diversion limitations that exist for the
22 reservoirs, including the intakes in Folsom Lake, during drought periods when
23 Reclamation may be allocating and delivering water in consideration of federal
24 and state regulatory requirements, including water rights. Droughts have occurred
25 throughout California's history, and are constantly shaping and innovating the
26 ways in which Reclamation and DWR balance both federal and state regulations,
27 public health standards and urban and agricultural water demands. The most
28 notable droughts in recent history are the droughts that occurred in 1976-77,
29 1987-92, and the ongoing drought. More details have been included in
30 Section 5.3.3 of Chapter 5, Surface Water Resources and Water Supplies, in the
31 Final EIS to describe historical responses by CVP and SWP to these drought
32 conditions.

33 **SLDMWA WWD SJRECWA 52:** The EIS includes the comparison of
34 Alternatives 1 through 5 to the No Action Alternative enabling decision makers to
35 compare the magnitude of environmental effects of the alternatives as compared
36 to the No Action Alternative benchmark (in accordance with Question 3 of the
37 CEQ Forty Most Asked Questions). The EIS analysis does not include a
38 determination of significance thresholds or comparison of the results of impact
39 assessment to the significance thresholds.

40 The EIS impact analysis starts with use of the monthly CalSim II model to project
41 CVP and SWP water deliveries. Because this regional model uses monthly time
42 steps to simulate requirements that change weekly or change through
43 observations, it was determined that changes in the model of 5 percent or less
44 were related to the uncertainties in the model processing. Therefore, reductions of
45 5 percent or less in this comparative analysis are considered to be not

1 substantially different, or “similar.” This approach is similar to that used in the
2 Shasta Lake Resources Investigation EIS published by Reclamation in 2015.

3 **SLDMWA WWD SJRECWA 53:** The No Action Alternative, Second Basis of
4 Comparison, and Alternatives 1 through 5 include consistent climate change and
5 sea level rise conditions. The EIS assumes that there will be no changes in
6 regulatory or operational requirements due to climate change in the future. The
7 EIS analyzes the alternatives in a comparative manner, and does not analyze any
8 of the alternatives individually. Therefore, the impact analysis compares
9 conditions under the Alternatives 1 through 5 to the No Action Alternative; and
10 conditions under the No Action Alternative and Alternatives 1 through 5 to the
11 Second Basis of Comparison. This comparative approach eliminates effects of
12 climate change and sea level rise and indicates the differences in the comparisons
13 of alternatives to the No Action Alternative and Second Basis of Comparison.

14 The alternatives and the Second Basis of Comparison are all compared with the
15 same future climate and growth projections at 2030. The EIS analyzed the
16 alternatives at 2030 because the current BOs were analyzed for conditions until
17 2030. Also, by 2030, there would be full implementation of the provisions in
18 each of the alternatives, such as completion of predation control plans in
19 Alternatives 3 and 4 or fish passage programs in Alternative 5 and the No Action
20 Alternative. If the environmental analysis was conducted under CEQA by a
21 California-based public agency, the analysis would include a comparison of future
22 conditions to existing conditions.

23 Additional text in Section 5A.A.5.3.1 has been included to discuss that selection
24 of the climate change scenario (Q1 to Q5) does not affect the results of the
25 comparison of alternatives to the No Action Alternative or Second Basis of
26 Comparison. The climate change assumptions are major factors in the
27 determination of reservoir storage and available water for CVP and SWP
28 deliveries in the alternatives. However, the effects of climate change occur under
29 both sets of operational scenarios in the comparative analysis. Therefore, the
30 incremental differences between the alternatives, the No Action Alternative, and
31 the Second Basis of Comparison are similar no matter which climate change
32 scenario is selected, although the absolute results are different. The NEPA
33 analysis is based upon the incremental difference, and not necessarily upon the
34 absolute values of the model results. In addition, due to the uncertainties in the
35 use of planning models (e.g., CalSim II, CVHM, SWAP, CWEST), the results
36 should always be used in a comparative manner and not for prediction of absolute
37 values.

38 **SLDMWA WWD SJRECWA 54:** The CalSim II model results presented in
39 Appendix 5A, Section C, CalSim II and DSM2 Model Results, Figures 19.1.1
40 through 19.1.9 are correct. Tables 19.1.1 through 19.6.2 have been corrected and
41 footnotes have been added to explain how water deliveries to San Francisco Bay
42 Area CVP water users are allocated to the areas North of Delta and South of Delta
43 in the second portions of each table.

1 **SLDMWA WWD SJRECWA 55:** In response to this and similar comments
 2 made by others, text has been added to the Affected Environment section of the
 3 Final EIS to appropriately provide attribution where needed and to expand the
 4 discussion and reference to information in the recent scientific literature. For
 5 example, the text on page 9-57 of the Draft EIS has been modified to clarify the
 6 timing of spring-run emigration in the Delta and appropriately cite the sources of
 7 information, including Snider and Titus (1998, 2000b, c, d), Vincik et al. (2006),
 8 and Roberts (2007). These same changes have been applied to the discussion of
 9 spring-run Chinook Salmon in other parts of the document and in Appendix 9B
 10 for consistency.

11 The text on invasive species on page 9-80 of the Draft EIS has been modified to
 12 better define invasive species. The term “invasive species” is now defined (in a
 13 footnote) as “species that establish and reproduce rapidly outside of their native
 14 range and may threaten the diversity or abundance of native species through
 15 competition for resources, predation, parasitism, hybridization with native
 16 populations, introduction of pathogens, or physical or chemical alteration of the
 17 invaded habitat.” This is consistent with the commenter’s description of the harm
 18 that invasive species can have on the environment.

19 The text on predation on page 9-97 of the Draft EIS has been modified to remove
 20 the uncited NMFS reference and add more recent information on predation in the
 21 Tuolumne River with the appropriate citations. In addition, text was inserted to
 22 better clarify the current understanding of the relation (and uncertainty) between
 23 X2 and Delta Smelt habitat and water quality in the Stockton Deepwater Ship
 24 Channel. Additional text has been added on page 9-56 from the most recent POD
 25 report (Baxter et al. 2010) regarding the potential drivers of the POD and
 26 clarifying the relationship (and uncertainty in the relationship) between X2 and
 27 habitat for these species.

28 **SLDMWA WWD SJRECWA 56:** Please see responses in Section 1.D.1.14,
 29 State Water Contractors, for responses to comments from the State Water
 30 Contractors.

31 **SLDMWA WWD SJRECWA 57:** As discussed in response to Comments
 32 SLDMWA WWD SJRECWA 13, the analysis in the EIS compares conditions
 33 under Alternatives 1 through 5 with the No Action Alternative to identify
 34 beneficial and adverse impacts for a broad range of physical, environmental, and
 35 human resources. The NEPA analysis does not determine if the alternatives
 36 would change the findings of the biological opinions in the determination of the
 37 likelihood of the alternatives to cause jeopardy to the continued existence of the
 38 species, or destroy or adversely affect their critical habitat. Also, please see the
 39 response to SLDMWA WWD SJRECWA 28, which explains the basis of the
 40 analysis and text additions in the Final EIS to more sharply define the differences
 41 among alternatives.

42 **SLDMWA WWD SJRECWA 58:** Section 9.4.1.3.3 does state that “[c]hanges
 43 in CVP and SWP operations can affect through-Delta survival of migratory (e.g.,
 44 salmonids) and resident (e.g., Delta and Longfin smelt) fish species through

1 changes in the level of entrainment at CVP and SWP export pumping facilities”
 2 as indicated in the comment, but this statement is not conclusory and does not
 3 need a citation. It is well known that changes in operations can affect entrainment
 4 in the facilities, and therefore survival. Nowhere in this section does the DEIS
 5 assert that “exports are negatively related to through-Delta survival” or conclude
 6 that “that entrainment is related to abundance.”

7 The conclusion on page 9-150 that “[i]t is not likely that operations of the CVP
 8 and SWP under the Second Basis of Comparison would result in improvement of
 9 habitat conditions in the Delta or increases in populations for these fish by 2030,
 10 and the recent trajectory of loss would likely continue” refers specifically to
 11 “operations” not habitat restoration. The basis for this conclusion is presented in
 12 the preceding paragraphs on that page. For example, lines 18-22 state “[u]nder
 13 the Second Basis of Comparison in 2030, many years will have passed without
 14 seasonal limitations on OMR reverse (negative) flow rates, with the anticipated
 15 result that fish entrainment would occur at levels comparable to recent historical
 16 conditions. Future pumping operations would continue to expose fish to the
 17 salvage facilities and entrainment losses into the future.”

18 **SLDMWA WWD SJRECWA 59:** The EIS includes the comparison of
 19 Alternatives 1 through 5 to the No Action Alternative enabling decision makers to
 20 compare the magnitude of environmental effects of the alternatives as compared
 21 to the No Action Alternative benchmark (in accordance with Question 3 of the
 22 CEQ Forty Most Asked Questions). The EIS analysis does not include a
 23 determination of significance thresholds or comparison of the results of impact
 24 assessment to the significance thresholds.

25 Given the complexity of the water system and associated aquatic ecosystem, tools
 26 are not available to reliably quantify the numbers of individuals of species, the
 27 viability of species populations, and the amount and quality of critical habitat.
 28 The analysis in the Draft EIS relied on modeling tools and qualitative analyses to
 29 provide indication of these attributes for comparison among alternatives rather
 30 than attempting absolute quantification. However, numerical indications of
 31 potential changes in species abundance and habitat availability are presented
 32 throughout the impact analysis in the Draft EIS. For example, the two life cycle
 33 models used to evaluate effects on winter-run Chinook Salmon provide output in
 34 terms of expected escapement. Similarly, SALMOD and the Egg Mortality
 35 Model provide outputs that indicate potential changes in salmon abundance.
 36 Habitat quality was addressed in terms of water temperature and WUA for
 37 salmonids and the fall abiotic index was used to quantify potential differences in
 38 Delta Smelt habitat. This information contributes to the subsequent effects
 39 analysis under Section 7 of the ESA, but as discussed in response to Comment
 40 SLDMWA WWD SJRECWA 25, the NEPA analysis does not address species
 41 viability or determine if the alternatives would be likely to cause jeopardy to the
 42 continued existence of the species, or destroy or adversely affect their critical
 43 habitat.

44 **SLDMWA WWD SJRECWA 60:** The analysis of spring-run Chinook Salmon
 45 referenced in the comment was based on the results of a combination of

1 quantitative and qualitative assessments (see Section 9.4.1.8), and was intended to
2 provide indication of the relative differences between the No Action Alternative
3 and the Second Basis of Comparison. In this example, the descriptive term
4 “slightly more adverse” was used to indicate the relative magnitude of the
5 difference. This term was not intended to imply significance (as in CEQA) or the
6 likelihood of jeopardy, which would commonly be found in an ESA analysis, not
7 NEPA. This and other descriptive terms were used in the Draft EIS for presenting
8 the results of the analyses for other species.

9 The EIS includes the comparison of Alternatives 1 through 5 to the No Action
10 Alternative enabling decision makers to compare the magnitude of environmental
11 effects of the alternatives as compared to the No Action Alternative benchmark
12 (in accordance with Question 3 of the CEQ Forty Most Asked Questions). The
13 EIS analysis does not include a determination of significance thresholds or
14 comparison of the results of impact assessment to the significance thresholds.

15 **SLDMWA WWD SJRECWA 61:** While Chapter 9 acknowledges the existence
16 of other stressors for listed species, it also acknowledges that it is impossible to
17 scale the effects of these stressors relative to CVP/SWP operations or determine
18 with any certainty the population level effects of any action. Regarding the scale
19 of flow variations resulting from such operational modifications versus natural
20 flow variations due to the Bay-Delta tidal system, the Bay-Delta system is hardly
21 natural and the flow variations due to the tidal system would be present under any
22 of the alternatives.

23 The NMFS (2014) attachment showing the relative significance of entrainment
24 versus harvest, predation, and other stressors is based entirely on subjective
25 weightings based on the importance of each life stage, stressor category, and
26 individual stressors. NMFS makes no distinction between stressors in each of the
27 overall stressor category other than sorting by “Normalized Weight” of individual
28 stressors. It should be noted that the “Jones and Banks Pumping Plants”
29 individual stressor is still rated as “VH” (Very High) as an overall stressor and is
30 the highest rated stressor in the “Entrainment” stressor category.

31 The literature sources provided in footnote 10 do not conclude “that more flow is
32 not necessarily the solution in highly altered systems” as indicated in the
33 comment. Hart and Finelli (1999) indicate that flow is the primary environmental
34 factor determining the character of aquatic ecosystems, a notion shared by the
35 other authors. Most of these authors argue for a more natural flow regime in
36 altered systems or preservation of the natural flow regime if it exists. Poff et al.
37 (1997) recognized that full flow restoration is not always possible and argue for
38 capitalizing on the natural between-year variability in flow and mimicking certain
39 geomorphic processes may provide some ecological benefits. This supports the
40 assertion in the comment that efficient or targeted use of flow is more likely to
41 attain specific ecological benefits, particularly when paired with additional actions
42 to address non-flow stressors. However, the targeted use of flow is not included
43 in the range of alternatives evaluated and is beyond the scope of this NEPA
44 analysis. In addition, the effectiveness of this approach is uncertain. Bunn and
45 Arthington (2002) point out that there is limited ability to predict and quantify

1 biotic responses to flow regulation or separate impacts of altered flow regimes
2 from other factors and interactions. Poff and Zimmerman (2010) conducted a
3 substantial literature review and found that the literature “support[s] the inference
4 that flow alteration is associated with ecological change and that the risk of
5 ecological change increases with increasing magnitude of flow alteration.”

6 **SLDMWA WWD SJRECWA 62:** The life cycle models of Maunder and Deriso
7 (2011) were referenced on page 9-115 and in Appendix 9B of the Draft EIS. The
8 Maunder and Deriso model uses survey data from the 20mm trawl, summer tow
9 net, and FMWT time series to explore the possibility of density dependence
10 between life stages and possible environmental covariates by fitting the model to
11 the existing data. It was not used because it was not designed (or used) for
12 forecasting future Delta smelt population abundance. The life cycle model
13 developed by Rose et al. (2013a, b) could not be used in this analysis because it
14 uses a wide array of daily data, many of the assumptions and parameter values
15 were based on judgment, and the model was “designed for exploring hypotheses
16 about some of the factors affecting Delta Smelt population dynamics but is not
17 designed for forecasting future Delta Smelt population abundances.” In addition,
18 Reed et al. (2014) noted that “To date, these models have not been fully vetted
19 and evaluated sufficiently to be used for direct management applications.”

20 **SLDMWA WWD SJRECWA 63:** Reclamation has modified the Final EIS in
21 response to comments from SLDMWA WWD SJRECWA and other commenters;
22 and will use the Final EIS in the development of the Record of Decision.

23 **SLDMWA WWD SJRECWA 64:** Comment noted.

24 **SLDMWA WWD SJRECWA 65:** Please see responses to Comments
25 SLDMWA WWD SJRECWA 72 to SLDMWA WWD SJRECWA 147.

26 **SLDMWA WWD SJRECWA 66:** Comment noted.

27 **SLDMWA WWD SJRECWA 67:** At the time the request for extension of the
28 review period for the Administrative Draft EIS by Cooperating Agencies was
29 submitted, the Amended Judgement dated September 30, 2014 issued by the
30 United States District Court for the Eastern District of California (District Court)
31 in the *Consolidated Delta Smelt Cases* required Reclamation to issue a Record of
32 Decision by no later than December 1, 2015. Due to this requirement,
33 Reclamation did not have sufficient time to extend the review period. On October
34 9, 2015, the District Court granted a very short time extension to address
35 comments received during the public review period, and requires Reclamation to
36 issue a Record of Decision on or before January 12, 2016. This current court
37 ordered schedule does not provide sufficient time for Reclamation to extend the
38 public review period.

39 **SLDMWA WWD SJRECWA 68:** Please see response to Comment SLDMWA
40 WWD SJRECWA 4.

41 **SLDMWA WWD SJRECWA 69:** A table has been added to Chapter 3,
42 Description of Alternatives, to simply compare the long-term effects of
43 implementing Alternatives 1 through 5 to the No Action Alternative. The

- 1 comparison is presented in accordance with NEPA requirements (40 CFR
2 1502.16); and, therefore, does not include the comparison of alternatives to the
3 Second Basis of Comparison.
- 4 **SLDMWA WWD SJRECWA 70:** The impacts and impact conclusions in
5 Chapter 9 have been revised to more definitely state the conclusions and provide
6 decision makers and the public a clearer indication of the magnitude and
7 materiality of the differences where a distinction among alternatives exists. In
8 addition, text has been inserted into the Final EIS to better reflect uncertainty and
9 information in the recent scientific literature, including the discussion of OMR.
10 Also, please see response to Comment SLDMWA WWD SJRECWA 32.
- 11 **SLDMWA WWD SJRECWA 71:** Reclamation has modified the Final EIS in
12 response to comments from SLDMWA WWD SJRECWA and other commenters;
13 and will use the Final EIS in the development of the Record of Decision.
- 14 **SLDMWA WWD SJRECWA 72:** Comment noted.
- 15 **SLDMWA WWD SJRECWA 73:** The Administrative Draft EIS reviewed by
16 Cooperating Agencies in April 2013 was substantially modified prior to
17 publication of the Draft EIS in July 2015.
- 18 **SLDMWA WWD SJ RECWA 74:** The Ninth Circuit upheld the validity of both
19 BOs and FWS and NMFS are no longer under court order to complete new BOs
20 on the effects of CVP and SWP operations on listed species. The remand order to
21 Reclamation does not trigger any obligation for a new Biological Assessment
22 unless Reclamation decides to operate the CVP differently from the operations
23 described in the BOs.
- 24 Because Reclamation identified the No Action Alternative as the Preferred
25 Alternative and the No Action Alternative is consistent with the operation
26 described in the BOs, Reclamation does not need to prepare a Biological
27 Assessment at this time. If Reclamation chooses to alter the operation from that
28 described in the BOs at some future time and the effects of the operations are not
29 covered in the analysis of the BOs, a Biological Assessment would be prepared to
30 initiate the Section 7 consultation process.
- 31 **SLDMWA WWD SJRECWA 75:** Please see response to Comment SLDMWA
32 WWD SJRECWA 4.
- 33 **SLDMWA WWD SJRECWA 76:** Please see response to Comment SLDMWA
34 WWD SJRECWA 3.
- 35 **SLDMWA WWD SJRECWA 77:** Please see response to Comments SLDMWA
36 WWD SJRECWA 32 and SLDMWA WWD SJRECWA 62.
- 37 **SLDMWA WWD SJRECWA 78:** The EIS analysis includes quantitative
38 analyses.
- 39 **SLDMWA WWD SJRECWA 79:** Please see response to Comment SLDMWA
40 WWD SJRECWA 74.

- 1 **SLDMWA WWD SJRECWA 80:** The responses to the comments in Exhibit B
2 are presented in this appendix as response to Comments SLDMWA WWD
3 SJRECWA 84 to SLDMWA WWD SJRECWA 101.
- 4 **SLDMWA WWD SJRECWA 81:** Please see responses to Comments
5 SLDMWA WWD SJRECWA 102 to SLDMWA WWD SJRECWA 147.
- 6 **SLDMWA WWD SJRECWA 82:** Comment noted.
- 7 **SLDMWA WWD SJRECWA 83:** Comment noted.
- 8 **SLDMWA WWD SJRECWA 84:** Please see response to Comment SLDMWA
9 WWD SJRECWA 3.
- 10 **SLDMWA WWD SJRECWA 85:** Please see response to Comment SLDMWA
11 WWD SJRECWA 25.
- 12 **SLDMWA WWD SJRECWA 86:** Please see response to Comment SLDMWA
13 WWD SJRECWA 74.
- 14 **SLDMWA WWD SJRECWA 87:** As described in the response to Comment
15 SLDMWA WWD SJRECWA 74, the BOs were upheld. The Ninth Circuit
16 upheld the validity of both BOs and FWS and NMFS are no longer under court
17 order to complete new BOs on the effects of CVP and SWP operations on listed
18 species. The remand order to Reclamation does not trigger any obligation for new
19 BOs from FWS and NMFS unless Reclamation decides to operate the CVP
20 differently from the operations described in the BOs. As described in the
21 response to Comment SLDMWA WWD SJRECWA 3, the EIS provides a
22 comparison of projected adverse effects and benefits of Alternatives 1 through 5
23 and the No Action Alternative. The EIS also provides a comparison of conditions
24 of the No Action Alternative and Alternatives 1 through 5 and the Second Basis
25 of Comparison. The NEPA analysis does not determine if the alternatives would
26 change the findings of the biological opinions in the determination of the
27 likelihood of the alternatives to cause jeopardy to the continued existence of the
28 species, or destroy or adversely affect their critical habitat.
- 29 **SLDMWA WWD SJRECWA 88:** As described in the comment, the EIS
30 analyzes the effects of coordinated long-term operation of the CVP and SWP on
31 both Delta Smelt, salmonid species, and sturgeon species.
- 32 **SLDMWA WWD SJRECWA 89:** Please see response to Comment SLDMWA
33 WWD SJRECWA 14 and SLDMWA WWD SJRECWA 74
- 34 **SLDMWA WWD SJRECWA 90:** The purpose of the action was modified in the
35 EIS following preparation of the 2013 Administrative Draft EIS for Cooperating
36 Agency review to include consistency with Federal Reclamation law; other
37 Federal laws and regulations; Federal permits and licenses; and State of California
38 water rights, permits, and licenses. Reclamation has a legal obligation to comply
39 with these law, permits, and licenses, including with Section 7 of the ESA.
- 40 **SLDMWA WWD SJRECWA 91:** As described in the response to Comment
41 SLDMWA WWD SJRECWA 74, the BOs were upheld by the Court. Please see

- 1 response to Comment SLDMWA WWD SJRECWA 24 related to the Need
2 statement in Chapter 2, Purpose and Need, of the EIS.
- 3 **SLDMWA WWD SJRECWA 92:** Please see response to Comments SLDMWA
4 WWD SJRECWA 4.
- 5 **SLDMWA WWD SJRECWA 93:** Please see response to Comment SLDMWA
6 WWD SJRECWA 4.
- 7 **SLDMWA WWD SJRECWA 94:** Please see response to Comment SLDMWA
8 WWD SJRECWA 16.
- 9 **SLDMWA WWD SJRECWA 95:** The discussion of development and
10 application of the screening criteria, and subsequent identification of alternatives
11 has been expanded in the EIS as compared to the discussion included in the 2013
12 Administrative Draft EIS for Cooperating Agency review.
- 13 **SLDMWA WWD SJRECWA 96:** The EIS analysis compares conditions under
14 a range of alternatives (Alternatives 1 through 5) with the No Action Alternative
15 to identify beneficial and adverse impacts for a broad range of physical,
16 environmental, and human resources. A reasonable range of alternatives includes
17 technically and economically feasible alternatives to address the purpose and need
18 for the action (40 CFR 1502.14). However, the range of alternatives can be
19 limited if the alternatives analyzed address the full spectrum of alternatives
20 (Question 1b of CEQ Forty Most Asked Questions). The range of alternative
21 concepts was evaluated with respect to screening criteria defined in the purpose of
22 the action (see Chapter 2, Purpose and Need), a determination if the concept
23 addressed one or more significant issues, and if the concept was included in one
24 or more alternatives (Table 3.1 in Chapter 3, Description of Alternatives). The
25 NEPA analysis does not determine if the alternatives would change the findings
26 of the biological opinions in the determination of the likelihood of the alternatives
27 to cause jeopardy to the continued existence of the species, or destroy or
28 adversely affect their critical habitat.
- 29 **SLDMWA WWD SJRECWA 97:** The EIS analysis includes quantitative
30 analyses.
- 31 **SLDMWA WWD SJRECWA 98:** In response to this and similar comments, text
32 was added to the Final EIS to better clarify uncertainty, particularly as it relates to
33 recent information in the scientific literature. These modifications to the text
34 were made in the Affected Environment sections where relationships between
35 physical attributes of the system and species responses are discussed as well as in
36 the impact conclusions where it was necessary to qualify a conclusion based on
37 the level of uncertainty or to describe expert disagreement.
- 38 **SLDMWA WWD SJRECWA 99:** The EIS analysis includes quantitative
39 analyses using a wide range of analytical tools, including those listed in this
40 comment.
- 41 **SLDMWA WWD SJRECWA 100:** This comment addressed the 2013
42 Administrative Draft EIS prepared for Cooperating Agency review. That version
43 of the EIS did not include quantitative analyses. The Draft EIS and Final EIS

1 include quantitative analyses where appropriate models are available; and the
2 numeric results are considered in conjunction with the remaining qualitative
3 analyses in the comparison of alternatives. Also, please see response to Comment
4 SLDMWA WWD SJRECWA 59.

5 **SLDMWA WWD SJRECWA 101:** Please see response to Comments
6 SLDMWA WWD SJRECWA 102 and SLDMWA WWD SJRECWA 147.

7 **SLDMWA WWD SJRECWA 102:** Comment noted.

8 **SLDMWA WWD SJRECWA 103:** The Ninth Circuit upheld the validity of
9 both BOs and FWS and NMFS are no longer under court order to complete new
10 BOs on the effects of CVP and SWP operations on listed species. The remand
11 order to Reclamation does not trigger any obligation for a new Biological
12 Assessment unless Reclamation decides to operate the CVP differently from the
13 operations described in the BOs.

14 Because Reclamation identified the No Action Alternative as the Preferred
15 Alternative and the No Action Alternative is consistent with the operation
16 described in the BOs, Reclamation does not need to prepare a Biological
17 Assessment at this time. If Reclamation chooses to alter the operation from that
18 described in the BOs at some future time and the effects of the operations are not
19 covered in the analysis of the BOs, a Biological Assessment would be prepared to
20 initiate the Section 7 consultation process.

21 **SLDMWA WWD SJRECWA 104:** Comment noted.

22 **SLDMWA WWD SJRECWA 105:** As described in Section 23.4 of Chapter 23,
23 Consultation and Coordination, of the EIS, a Memorandum of Understanding was
24 developed and signed by the Cooperating Agencies listed in the EIS.

25 **SLDMWA WWD SJRECWA 106:** The Ninth Circuit upheld the validity of
26 both BOs and FWS and NMFS are no longer under court order to complete new
27 BOs on the effects of CVP and SWP operations on listed species. The remand
28 order to Reclamation does not trigger any obligation for a new Biological
29 Assessment unless Reclamation decides to operate the CVP differently from the
30 operations described in the BOs and the effects of the operations are not covered
31 in the analysis of the BOs.

32 Because Reclamation identified the No Action Alternative as the Preferred
33 Alternative and the No Action Alternative is consistent with the operation
34 described in the BOs, Reclamation does not need to prepare a Biological
35 Assessment at this time. If Reclamation chooses to alter the operation from that
36 described in the BOs at some future time and the effects of the operations are not
37 covered in the analysis of the BOs, a Biological Assessment would be prepared to
38 initiate the Section 7 consultation process.

39 **SLDMWA WWD SJRECWA 107:** NEPA suggests an EIS be prepared for
40 broad and major federal actions, the alternatives could have significant adverse
41 effects, and/or there is a high degree of controversy (40 CFR 1501.4, 1502.4,
42 1508.18; and Question 37b of CEQ Forty Most Asked Questions). Based upon
43 these considerations, the range of alternatives suggested during the scoping

1 process, as described in Chapter 3, Description of Alternatives, and the need to
 2 quantitatively evaluate a wide range of potential changes to the environment due
 3 to implementation of the alternatives, Reclamation determined that the
 4 appropriate NEPA document should be an EIS.

5 The Ninth Circuit upheld the validity of both BOs and FWS and NMFS are no
 6 longer under court order to complete new BOs on the effects of CVP and SWP
 7 operations on listed species. The remand order to Reclamation does not trigger
 8 any obligation for new BOs from FWS and NMFS unless Reclamation decides to
 9 operate the CVP differently from the operations described in the BOs. The EIS
 10 provides a comparison of projected adverse effects and benefits of Alternatives 1
 11 through 5 and the No Action Alternative. The EIS also provides a comparison of
 12 conditions of the No Action Alternative and Alternatives 1 through 5 and the
 13 Second Basis of Comparison. The NEPA analysis does not determine if the
 14 alternatives would change the findings of the biological opinions in the
 15 determination of the likelihood of the alternatives to cause jeopardy to the
 16 continued existence of the species, or destroy or adversely affect their critical
 17 habitat.

18 **SLDMWA WWD SJRECWA 108:** Comment noted.

19 **SLDMWA WWD SJRECWA 109:** The purpose of the action and the need for
 20 the action were modified in the EIS following preparation of the Notice of Intent
 21 to include consistency with Federal Reclamation law; other Federal laws and
 22 regulations; Federal permits and licenses; and State of California water rights,
 23 permits, and licenses. Reclamation has a legal obligation to comply with these
 24 law, permits, and licenses, including with Section 7 of the ESA.

25 **SLDMWA WWD SJRECWA 110:** The Affected Environment sections of the
 26 EIS include detailed descriptions of conditions that have occurred since the
 27 adoption of SWRCB D-1641, approximately 15 years ago, for each of the
 28 environmental resources addressed in Chapters 5 through 21 of the EIS. The
 29 study area for each of the resources generally encompasses the CVP and SWP
 30 service area and areas along the water bodies downstream of the CVP and SWP
 31 reservoirs. In specific instances, additional areas are analyzed, such as
 32 consideration of Colorado River water supplies used by SWP water users in
 33 southern California.

34 In the Final EIS, additional details have been included in Section 5.3.3 of Chapter
 35 5, Surface Water Resources and Water Supplies, and Section 6.3.3.6 of Chapter 6,
 36 Surface Water Quality, of the Draft EIS to describe historical responses by CVP
 37 and SWP to these drought conditions, including reductions in recent deliveries of
 38 CVP water and use of water from Millerton Lake to the San Joaquin River
 39 Exchange Contractors.

40 **SLDMWA WWD SJRECWA 111:** Please see response to Comment SLDMWA
 41 WWD SJRECWA 4.

42 **SLDMWA WWD SJRECWA 112:** Given the complexity of the water system
 43 and associated aquatic ecosystem, tools are not available to reliably quantify the

1 numbers of individuals of species, the viability of species populations, and the
 2 amount and quality of critical habitat. The analysis in the Draft EIS relied on
 3 modeling tools and qualitative analyses to provide indication of these attributes
 4 for comparison among alternatives rather than attempting absolute quantification.
 5 However, numerical indications of potential changes in species abundance and
 6 habitat availability are presented throughout the impact analysis in the Draft EIS.
 7 For example, the two life cycle models used to evaluate effects on winter-run
 8 Chinook Salmon provide output in terms of expected escapement. Similarly,
 9 SALMOD and the Egg Mortality Model provide outputs that indicate potential
 10 changes in salmon abundance. Habitat quality was addressed in terms of water
 11 temperature and WUA for salmonids and the fall abiotic index was used to
 12 quantify potential differences in Delta Smelt habitat. This information contributes
 13 to the subsequent effects analysis under Section 7 of the ESA, but as discussed in
 14 response to Comment SLDMWA WWD SJRECWA 25, the NEPA analysis does
 15 not address species viability or determine if the alternatives would be likely to
 16 cause jeopardy to the continued existence of the species, or destroy or adversely
 17 affect their critical habitat.

18 **SLDMWA WWD SJRECWA 113:** In Chapters 5 through 21, and their related
 19 appendices, the limitations of quantitative and qualitative analyses have been
 20 described. The issue of new science and uncertainty is particularly prevalent in
 21 the evaluation of aquatic resources in Chapter 9, Fish and Aquatic Resources. In
 22 Chapter 9, the impact discussions and impact conclusions have been revised to
 23 more definitely state the conclusions and provide decision makers and the public a
 24 clearer indication of the magnitude and materiality of the differences where a
 25 distinction among alternatives exists. In addition, text has been included the Final
 26 EIS to better reflect uncertainty and information in the recent scientific literature.

27 **SLDMWA WWD SJRECWA 114:** The initial Proposed Action was defined in
 28 the Notice of Intent, and is represented in Alternative 2 in the EIS. The Preferred
 29 Alternative is described in Section 1.5 of Chapter 1, Introduction, of the Final
 30 EIS. The justification for the selection of the Preferred Alternative will be
 31 presented in the Record of Decision. The Environmentally Preferred Alternative
 32 will be identified and disclosed in the Record of Decision, as required by the CEQ
 33 regulations.

34 **SLDMWA WWD SJRECWA 115:** The EIS does present a range of alternatives
 35 for the future coordinated long-term operation of the CVP and SWP that does
 36 provide a variety of methods to attempt to avoid jeopardy to the continued
 37 existence of the species, or destruction or adversely effects to their critical habitat.
 38 As described in response to Comment SLDMWA WWD SJRECWA 25, the
 39 screening criteria used to develop the range of alternatives in the EIS was based
 40 upon the purpose of the action (see Chapter 2, Purpose and Need), a
 41 determination if the concept addressed one or more significant issues, and if the
 42 concept was included in one or more alternatives (see Table 3.1 in Chapter 3,
 43 Description of Alternatives). The range of alternatives does include the No
 44 Action Alternative and Alternative 5 which are consistent with the 2008 USFWS

1 BO and 2009 NMFS BO. As noted in response 74 and 87, these BOs were upheld
2 by the Ninth Circuit in 2014.

3 **SLDMWA WWD SJRECWA 116:** The range of alternatives include concepts
4 that do not specifically affect CVP and SWP Delta exports, such as predation, trap
5 and haul concepts, and changes to allowable Delta and ocean harvest (see
6 Alternatives 3 and 4).

7 **SLDMWA WWD SJRECWA 117:** Reclamation is currently operating to the
8 2009 NMFS BO RPA regarding Fall X2 and believes that its inclusion in the
9 analysis of alternatives is appropriate and reasonable. The Final EIS includes
10 discussion of recent scientific information and the level of uncertainty regarding
11 the relation between X2 and Delta Smelt habitat. In response to scoping
12 comments, the Affected Environment section of the Final EIS also includes
13 discussion of factors influencing food availability for Delta Smelt and turbidity as
14 it relates to OMR flows. Reclamation considers the range of alternatives to be
15 sufficient for this EIS.

16 Reclamation recognizes that the available scientific information increases each
17 year as the volume of observed data increases. This information is included in
18 Chapters 5 through 21, as appropriate. Therefore, in addition to the alternatives
19 considered in the EIS, Reclamation is committed to continue working toward
20 improvements to the USFWS and NMFS RPA actions through either the adaptive
21 management process, Collaborative Science and Adaptive Management Program
22 (CSAMP) with the Collaborative Adaptive Management Team (CAMT), or other
23 similar ongoing or future efforts.

24 **SLDMWA WWD SJRECWA 118:** The range of alternatives included
25 alternatives that considered limitations on commercial fishing harvest
26 (Alternatives 3 and 4). The range of alternatives did include methods to maintain
27 cold water temperatures and changes to hatchery management plans, including
28 release timing of salmon (No Action Alternative, Alternative 2, and Alternative 5
29 related to the 2009 NMFS BO RPA actions).

30 **SLDMWA WWD SJRECWA 119:** The alternatives evaluated in the EIS include
31 actions intended to directly or indirectly address Green Sturgeon. The effects of
32 the alternatives related to green sturgeon were evaluated in Chapter 9, Fish and
33 Aquatic Resources, in the EIS. Reclamation considers the range of alternatives to
34 be sufficient for this EIS.

35 **SLDMWA WWD SJRECWA 120:** Mitigation measures are included in
36 Chapters 5 through 21 of the EIS to reduce adverse impacts of Alternatives 1
37 through 5 as compared to the No Action Alternative.

38 **SLDMWA WWD SJRECWA 121:** The responses to comments in Exhibit D are
39 presented in the responses to Comments SLDMWA WWD SJRECWA 137 and
40 SLDMWA WWD SJRECWA 147.

41 **SLDMWA WWD SJRECWA 122:** As described in Chapter 5, Surface Water
42 Resources and Water Supplies, and Chapter 7, Groundwater Resources and

1 Groundwater Quality, changes in CVP and SWP water deliveries have resulted in
2 changes in groundwater elevations.

3 It should be noted that Figures 7.15 through 7.60 in Chapter 7, Groundwater
4 Resources and Groundwater Quality, have been modified in the Final EIS to
5 correct an error that increased the changes in groundwater elevation by a factor of
6 3.25. This miscalculation was due to an error in a model post-processor that
7 generates the figures related to changing the values from CVHM Model output
8 from meters to feet. Therefore, the results in these figures and the related text in
9 Chapter 7 are less than reported in the Draft EIS. The figures and the text have
10 been revised in the Final EIS. No changes are required to the CVHM model. The
11 revised results in the figures and the text in Chapter 7 are consistent with the
12 findings of the SWAP model.

13 **SLDMWA WWD SJRECWA 123:** As described in the response to Comment
14 SLDMWA WWD SJRECWA 5, the SWAP model, a regional agricultural
15 production and economic optimization model that simulates the decisions of
16 farmers across 93 percent of agricultural land in California, was used to determine
17 changes in agricultural land use and employment based upon changes in CVP and
18 SWP water deliveries and cost-effective water supplies, as described in Appendix
19 12A, Statewide Agricultural Production Model (SWAP) Documentation, of the
20 EIS. The SWAP model simulates changes in Year 2030 based upon economic
21 optimization factors related to crop selection, water supplies, and other factors to
22 maximize profits with consideration of resource constraints, technical production
23 relationships, and market conditions. The model indicated that even with the cost
24 of groundwater pumping from greater depths, the overall agricultural production
25 would not change in response to changes in CVP and SWP water deliveries under
26 the alternatives as compared to the No Action Alternative and the Second Basis of
27 Comparison.

28 Changes in CVP and SWP water deliveries are within the overall range of
29 projected water supplies in related urban water management plans, as described in
30 Appendix 5D, Municipal and Industrial Water Demands and Supplies. It is
31 anticipated that the communities would change their reliance on alternative water
32 supplies, such as groundwater and recycled water, as described in the urban water
33 management plans.

34 **SLDMWA WWD SJRECWA 124:** As described in Chapter 19,
35 Socioeconomics, anticipated changes in socioeconomics conditions would occur
36 with respect to recreation opportunities at San Luis Reservoir, freshwater and
37 ocean fishing, and municipal and industrial water costs. The SWAP model output
38 indicated that long-term agricultural land use, production, and employment would
39 not change under any of the alternatives because groundwater use would change
40 in response to changes in CVP and SWP water deliveries under the alternatives as
41 compared to the No Action Alternative and the Second Basis of Comparison.

42 It is recognized that in the short-term, responses to reduced CVP and SWP water
43 deliveries could be different than over the long-term. For example, during the
44 recent drought some areas relied upon crop idling because expansion of

1 groundwater wellfields was not easily implemented in the short-term, and there
 2 were losses of jobs. The EIS analysis is considering the long-term changes by
 3 2030, including agricultural water supplies based upon long-term economic
 4 modeling (see results of SWAP model runs in Chapter 12, Agricultural
 5 Resources). The SWAP model indicated that even with the cost of groundwater
 6 pumping from greater depths, the overall agricultural production could be
 7 maintained and agricultural-related jobs would be similar.

8 **SLDMWA WWD SJRECWA 125:** As described in Chapter 21, Environmental
 9 Justice, anticipated changes in environmental justice conditions would occur with
 10 respect to air quality in the San Joaquin Valley due to changes in use of
 11 groundwater pumps that are driven by diesel engines, and Delta mercury
 12 concentrations.

13 **SLDMWA WWD SJRECWA 126:** Chapter 9, Fish and Aquatic Resources, and
 14 Chapter 10, Terrestrial Biological Resources, include description of changes in
 15 biological resources and habitats related to changes in coordinated long-term
 16 operation of CVP and SWP in the alternatives, including changes in wetlands,
 17 riparian, and reservoir areas. This analysis includes evaluation of both the effects
 18 on species occupying CVP and SWP waterways as well as biological resources
 19 dependent on habitats supported by CVP and SWP water deliveries.

20 In response to Scoping comments, the Final EIS describes the level of uncertainty
 21 associated with species and various aspects of the ecosystem, and identifies areas
 22 of controversy, where relevant. In addition, the impact conclusions attempt to be
 23 definitive to the extent the analysis allows, and provide decision makers and the
 24 public a clear indication of the magnitude of the differences. However, because
 25 of the similarities in many of the alternatives and the level of uncertainty, a clear
 26 distinction is not always possible.

27 **SLDMWA WWD SJRECWA 127:** Chapter 6, Surface Water Quality, includes
 28 changes in water quality in the reservoirs, streams downstream of the reservoirs,
 29 and Delta. Additional details regarding water quality in the CVP and SWP
 30 service areas, including use of Delta water supplies to dilute the salinity of other
 31 water supplies, have been included in the Final EIS.

32 **SLDMWA WWD SJRECWA 128:** Chapter 16, Air Quality and Greenhouse
 33 Gas Emissions, includes changes in air quality in the San Joaquin Valley due to
 34 changes in use of groundwater pumps that are driven by diesel engines.

35 **SLDMWA WWD SJRECWA 129:** Chapter 11, Soils and Geology, discusses
 36 the potential for changes in soils and geology under the alternatives as compared
 37 to the No Action Alternative and the Second Basis of Comparison. Changes in
 38 subsidence potential are discussed in Chapter 7, Groundwater Resources and
 39 Groundwater Quality.

40 **SLDMWA WWD SJRECWA 130:** Chapter 14, Visual Resources, discusses the
 41 potential for changes in visual resources at the reservoirs and at the agricultural
 42 lands under the alternatives as compared to the No Action Alternative and the
 43 Second Basis of Comparison.

1 **SLDMWA WWD SJRECWA 131:** Chapter 15, Recreation Resources, discusses
2 the potential for changes in recreation resources under the alternatives as
3 compared to the No Action Alternative and the Second Basis of Comparison.

4 The alternatives do not include specific construction activities and agricultural
5 production does not changes between the alternatives; therefore, transportation
6 conditions would not change and was not analyzed in the EIS.

7 The effects of climate change are included in all analyses for implementation of
8 the alternatives as compared to the No Action Alternative and the Second Basis of
9 Comparison at the Year 2030. The discussion of the effects of the alternatives on
10 climate change potential has been expanded in Chapter 16 of the Final EIS.

11 **SLDMWA WWD SJRECWA 132:** Please see response to Comment SLDMWA
12 WWD SJRECWA 112.

13 **SLDMWA WWD SJRECWA 133:**

14 Cumulative projects and programs considered in the EIS are identified in Section
15 1.6 of Chapter 1, Introduction, of the Draft EIS; and further described in Section
16 3.5 of Chapter 3, Description of Alternatives. The cumulative effects analyses
17 presented in Chapters 5 through 21 consider if substantial adverse effects would
18 occur with implementation of the alternatives and the cumulative effects programs
19 and policies as compared to the No Action Alternative with implementation of the
20 cumulative effects programs and policies.

21 The No Action Alternative represents operations consistent with implementation
22 of the 2008 and 2009 Biological Opinions. This No Action Alternative represents
23 the current management direction and level of management intensity consistent
24 with the explanation of the No Action Alternative included in Council of
25 Environmental Quality's Forty Most Asked Questions (Question 3). NEPA does
26 not require agencies to mitigate impacts, nor does it require agencies to identify
27 mitigation associated with the No Action Alternative.

28 Reclamation has a legal obligation to comply with Section 7 of the ESA. Section
29 7 requires Reclamation to insure that actions it authorizes, funds or carries out do
30 not jeopardize the continued existence of any listed species and do not destroy or
31 adversely modify designated critical habitat. This legal obligation was confirmed
32 in the Central Valley Project Improvement Act. Most of Reclamation's contracts
33 with CVP water users limit Reclamation's liability for shortages associated with
34 meeting legal obligations of the CVP. Additionally, ESA prohibits unauthorized
35 take of listed species. DWR has chosen to ensure its compliance with the ESA
36 through coordinated operation of the SWP with the CVP and to implement the
37 2008 USFWS BO and 2009 NMFS BO.

38 Reclamation recognizes that some CVP water users either have initiated or are
39 initiating programs to increase water supplies with separate environmental
40 documentation (see Appendix 5D, Municipal and Industrial Water Demands and
41 Supplies). Other CVP water users may implement future projects to increase
42 water supplies, such as construction and operation of a desalination plants and
43 water recycling programs. None of these future actions are currently authorized

1 and are not being proposed by Reclamation as a part of this decision. Adoption of
2 any of these types of these future actions, if authorized and funded by
3 Reclamation, would require additional analysis under NEPA.

4 **SLDMWA WWD SJRECWA 134:** Please see response to Comment SLDMWA
5 WWD SJRECWA 32.

6 **SLDMWA WWD SJRECWA 135:** The requirements of the Information Quality
7 Act were used in the selection of analytical tools and other methodologies used in
8 the Impact Analysis sections of Chapters 5 through 21. The methodologies were
9 described in each chapter.

10 **SLDMWA WWD SJRECWA 136:** Comment noted.

11 **SLDMWA WWD SJRECWA 137:** Comment noted. The items addressed in
12 this comment were considered in the preparation of the impact analyses in
13 Chapters 5 through 21 of the EIS.

14 **SLDMWA WWD SJRECWA 138:** As described in response to Comment
15 SLDMWA WWD SJRECWA 122, water resources analyses presented in
16 Chapters 5 and 7 includes evaluation of changes in CVP and SWP water
17 deliveries to agricultural and municipal and industrial customers, CVP and SWP
18 reservoir storage, groundwater withdrawals, groundwater elevations, and potential
19 for subsidence due to groundwater withdrawal patterns.

20 As described in response to Comment SLDMWA WWD SJRECWA 127, water
21 quality conditions presented in Chapter 6 includes changes in water quality in the
22 reservoirs, streams downstream of the reservoirs, and Delta. Additional details
23 regarding water quality in the CVP and SWP service areas, including use of Delta
24 water supplies to dilute the salinity of other water supplies, have been included in
25 the Final EIS.

26 Potential changes related to public health risk, including available water for
27 fighting wildland fires were evaluated in Chapter 18, Public Health.

28 **SLDMWA WWD SJRECWA 139:** As described in response to Comment
29 SLDMWA WWD SJRECWA 123, agricultural land use and municipal land use
30 was evaluated in Chapters 12 and 13. The analyses indicated that affordable
31 alternative water supplies would be available in the Year 2030 to use when CVP
32 and SWP water deliveries were reduced. Therefore, agricultural land uses would
33 not change and related soil erosion would not increase, as described in Chapter
34 11. The urban water management projections for the Year 2030 were used to
35 identify potential future projects, including numerous ongoing projects that had
36 completed planning documents as of this time.

37 **SLDMWA WWD SJRECWA 140:** As described in response to Comment
38 SLDMWA WWD SJRECWA 124, socioeconomic changes described in Chapter
39 19 were associated with changes in recreation opportunities at San Luis Reservoir,
40 freshwater and ocean fishing, and municipal and industrial water costs. Based
41 upon the SWAP and CWEST models, changes in employment would be less than
42 1 percent of the population in the regions due to the availability of alternative
43 water supplies by the Year 2030.

1 It is recognized that in the short-term, responses to reduced CVP and SWP water
2 deliveries could be different than over the long-term. For example, during the
3 recent drought some areas relied upon crop idling because expansion of
4 groundwater wellfields was not easily implemented in the short-term and job
5 losses occurred. The EIS analysis is considering the long-term changes by 2030,
6 including agricultural water supplies based upon long-term economic modeling
7 (see results of SWAP model runs in Chapter 12, Agricultural Resources). The
8 SWAP model indicated that even with the cost of groundwater pumping from
9 greater depths, the overall agricultural production could be maintained and
10 agricultural-related jobs would be similar.

11 **SLDMWA WWD SJRECWA 141:** As described in response to Comment
12 SLDMWA WWD SJRECWA 125, anticipated changes in environmental justice
13 conditions, as described in Chapter 21, would occur with respect to air quality in
14 the San Joaquin Valley due to changes in use of groundwater pumps that are
15 driven by diesel engines, and Delta mercury concentrations.

16 It is recognized that in the short-term, responses to reduced CVP and SWP water
17 deliveries could be different than over the long-term. For example, during the
18 recent drought some areas relied upon crop idling because expansion of
19 groundwater wellfields was not easily implemented in the short-term and job
20 losses occurred. The EIS analysis is considering the long-term changes by 2030,
21 including agricultural water supplies based upon long-term economic modeling
22 (see results of SWAP model runs in Chapter 12, Agricultural Resources). The
23 SWAP model indicated that even with the cost of groundwater pumping from
24 greater depths, the overall agricultural production could be maintained and
25 agricultural-related jobs would be similar.

26 **SLDMWA WWD SJRECWA 142:** As described in response to Comment
27 SLDMWA WWD SJRECWA 126, anticipated changes in biological resources (as
28 described in Chapters 9 and 10) would occur biological resources and habitats
29 related to changes in coordinated long-term operation of CVP and SWP in the
30 alternatives, including changes in wetlands, riparian, and reservoir areas.

31 **SLDMWA WWD SJRECWA 143:** As described in response to Comment
32 SLDMWA WWD SJRECWA 127, anticipated changes in surface water quality
33 (as described in Chapter 6) would occur in the reservoirs, streams downstream of
34 the reservoirs, and Delta. Additional details regarding water quality in the CVP
35 and SWP service areas, including use of Delta water supplies to dilute the salinity
36 of other water supplies and use for groundwater recharge and water recycling,
37 have been included in the Final EIS. Chapter 6 also describes changes in
38 selenium concentrations in the Delta due to runoff from agricultural and wetlands
39 areas.

40 **SLDMWA WWD SJRECWA 144:** As described in response to Comment
41 SLDMWA WWD SJRECWA 128, anticipated changes in air quality (as
42 described in Chapter 16) would occur in the San Joaquin Valley due to changes in
43 use of groundwater pumps that are driven by diesel engines. No changes in dust
44 generation from agricultural fields are anticipated because agricultural production

1 would be similar under all of the alternatives, the No Action Alternative, and the
2 Second Basis of Comparison.

3 **SLDMWA WWD SJRECWA 145:** As described in response to Comment
4 SLDMWA WWD SJRECWA 129, changes in soils and geology (as described in
5 Chapter 11) are not anticipated to occur agricultural and municipal land uses
6 would be similar under all of the alternatives, the No Action Alternative, and the
7 Second Basis of Comparison. Changes in subsidence potential are discussed in
8 Chapter 7, Groundwater Resources and Groundwater Quality.

9 **SLDMWA WWD SJRECWA 146:** As described in response to Comment
10 SLDMWA WWD SJRECWA 130, changes in visual resources (as described in
11 Chapter 14) were analyzed at the reservoirs and at the agricultural lands under the
12 alternatives as compared to the No Action Alternative and the Second Basis of
13 Comparison.

14 **SLDMWA WWD SJRECWA 147:** As described in response to Comment
15 SLDMWA WWD SJRECWA 131, changes in recreation resources (as described
16 in Chapter 15) were evaluated at CVP and SWP reservoirs and the streams
17 downstream of the reservoirs, and for Delta sport fishing.

18 The alternatives do not include specific construction activities and agricultural
19 production does not changes between the alternatives; therefore, transportation
20 conditions would not change and was not analyzed in the EIS.

21 The effects of climate change are included in all analyses for implementation of
22 the alternatives as compared to the No Action Alternative and the Second Basis of
23 Comparison at the Year 2030. The discussion of the effects of the alternatives on
24 climate change potential has been expanded in Chapter 16 of the Final EIS.

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